# APPENDIX A
## - TRAFFIC OPPERATIONAL ANALYSIS

# Traffic Operational Analysis

## Old Highway 99 Corridor Study
## City of Tumwater

**Prepared For:**
City of Tumwater

**Prepared By:**
SCJ Alliance
Ryan Shea, PTP, Senior Transportation Planner
8730 Tallon Lane NE, Suite 200
Lacey, WA 98516
360.352.1465

August 2022

SCJ ALLIANCE
CONSULTING SERVICES

# Operational Analysis

**Project Information**

| | |
|---|---|
| Project: | Old Highway 99 Corridor Study |
| Prepared for: | City of Tumwater |
| | Mary Heather Ames |

**Reviewing Agency**

| | |
|---|---|
| Jurisdiction: | City of Tumwater |

**Project Representative**


| | |
|---|---|
| Prepared by: | SCJ Alliance<br>8730 Tallon Lane NE, Suite 200<br>Lacey, WA 98516<br>360.352.1465<br>scjalliance.com |
| Contact: | Ryan Shea, PTP, Senior Transportation Planner |
| | Patrick Hold, PE, Project Manager |


| | |
|---|---|
| Project Reference: | SCJ #0625.29 |
| | Path: N:\Projects\0625 City of Tumwater\0625.29 Tumwater Old Hwy 99 and 79th Ave Corridor Study\Phase 02 - Corridor Traffic Validation\Report\2020-0622 Traffic Operations.docx |

# Table of Contents

**1 Introduction ..... 1**

1.1 Project Overview ..... 1
1.2 Study Context ..... 2

**2 Existing Conditions ..... 2**

2.1 Area Land Uses ..... 2
2.2 Roadway Inventory ..... 2
2.3 Traffic Volume Data ..... 3

**3 Future Conditions ..... 6**

3.1 Travel Demand Model ..... 6
3.2 Traffic Volume Forecasts ..... 6
3.3 Comparison to Tumwater Transportation Plan ..... 8
3.4 Sensitivity Analysis Scenario ..... 10

**4 Traffic Operations Analysis ..... 15**

4.1 Level of Service ..... 15
4.2 2040 Intersection Analysis ..... 16
4.3 2025 Opening Year Intersection Analysis ..... 19

**5 Summary/Conclusion ..... 21**

# List of Tables

Table 1. AM and PM Peak Hour Trip Generation Characteristics – Baseline ..... 8
Table 2. AM and PM Peak Period Trip Generation ..... 8
Table 3. PM Peak Hour 2040 Volume Comparison ..... 10
Table 4. AM and PM Peak Hour Shopping Center (LU 820) Trip Generation – Sensitivity Scenario ..... 11
Table 5. AM and PM Peak Hour Shopping Center (LU 820) Trip Generation – Sensitivity Scenario ..... 11
Table 6. 2040 Volume Comparison With Sensitivity Scenario ..... 12
Table 7. Level of Service Criteria for Intersections ..... 15
Table 8. Existing and 2040 AM Peak Hour Intersection Level of Service ..... 16
Table 9. Existing and 2040 PM Peak Hour Intersection Level of Service ..... 17
Table 10. 2025 AM Peak Hour Intersection Level of Service ..... 19
Table 11. 2025 PM Peak Hour Intersection Level of Service ..... 20

# List of Figures

Figure 1. Site Vicinity Map ..... 1
Figure 2. Existing Channelization and Intersection Control ..... 4
Figure 3. Existing 2020 AM and PM Peak Hour Volumes ..... 5
Figure 4. Projected 2025 AM and PM Peak Hour Volumes ..... 7
Figure 5. Projected 2040 Baseline AM and PM Peak Hour Volumes ..... 9
Figure 6. Projected 2040 Sensitivity Analysis AM and PM Peak Hour Volumes ..... 13
Figure 7. Locations of Additional Growth ..... 14

# List of Appendices

Appendix A Traffic Volume Counts
Appendix B Traffic Volume Calculation Worksheets
Appendix C Capacity Analysis Worksheets

# 1 Introduction

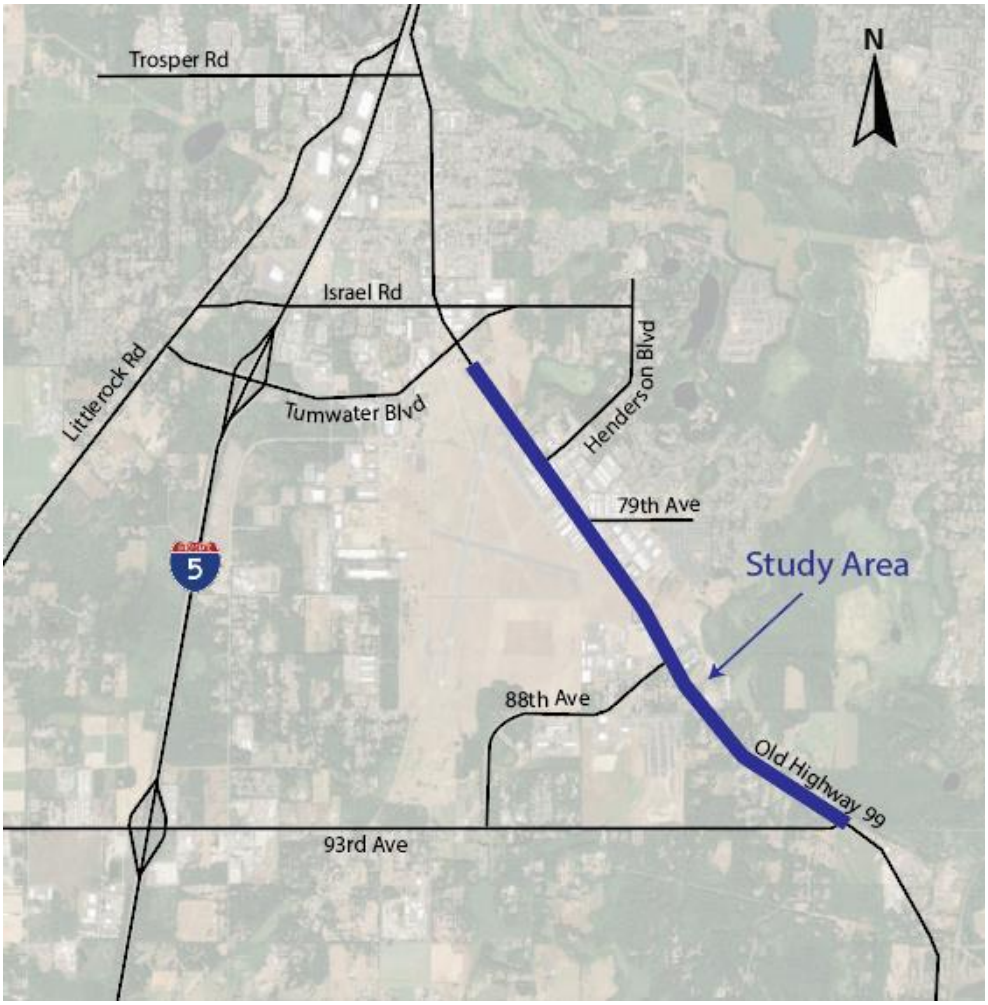
## 1.1 Project Overview

The City of Tumwater is conducting the *Old Highway 99 Corridor Study* (Corridor Study) to validate the transportation recommendations included in the *Tumwater City Plan 2036, Transportation Master Plan November 2016* (Transportation Plan) to identify and prioritize future projects and to develop strategies for future funding. The Transportation Plan recommends widening the Old Highway 99 corridor to 5 lanes from 73rd Avenue to 88th Avenue and widen to 3 lanes from 88th Avenue to 93rd Avenue. Included in the corridor improvement project was conversion of the two existing traffic signals, at Henderson Boulevard and 88th Avenue, to roundabouts. The Transportation Plan also identified intersection improvements at 79th Avenue and 93rd Avenue, recommending roundabouts at both locations.

The Corridor Study will identify necessary or recommended changes to these recommendations as a result of the validation process and identify preliminary design improvements. The Corridor Study extends from approximately 73rd Avenue SE to 93rd Avenue SE in Tumwater, Washington.

**Figure 1** illustrates the Corridor Study area.

**Figure 1.** Site Vicinity Map



## 1.2 Study Context

The Corridor Study validation process includes conducting a transportation operational analysis for potential roadway and intersection alternatives. This report describes the traffic count collection, traffic volume forecasting, and operational analysis performed to determine/confirm the recommended roadway and intersection design concepts. The operational analysis has been prepared for existing 2020 AM and PM peak hour conditions, forecasted 2025 AM and PM peak hour conditions and forecasted 2040 AM and PM peak hour conditions at the following intersections:

- Old Highway 99/Henderson Boulevard
- Old Highway 99/79th Avenue
- Old Highway 99/88th Avenue
- Old Highway 99/93rd Avenue

# 2 Existing Conditions

## 2.1 Area Land Uses

The Corridor Study extends from 73rd Avenue SE to 93rd Avenue SE. The surrounding land uses along the corridor includes a mix of industrial, commercial and undeveloped land. The Olympia Regional Airport and airport related uses are located along the west side of Old Highway 99 for a large majority of the study area. Old Highway 99 also provides connections to residential developments along the corridor.

The *Tumwater City Plan 2036* future zoning map identifies the properties adjacent to Old Highway 99 to be light industrial uses along the east side of the corridor and a mix of general commercial, airport, mixed use, and residential uses along the west side.

## 2.2 Roadway Inventory

### 2.2.1 Old Highway 99

Old Highway 99 is classified as an arterial from 73rd Avenue to south of 88th Avenue, and as a collector from south of 88th Avenue to 93rd Avenue. In the study area, Old Highway 99 has one lane in each direction. The roadway has a paved shoulder with intermittent sidewalks and has a posted speed limit of 50 mph from 93rd Avenue to 79th Avenue where the speed limit drops to 40 mph. The speed limit drops again to 35 mph north of the study area. Old Highway 99 extends from the City of Tenino north to the City of Tumwater. North of the study area, Old Highway 99 transitions to Capitol Boulevard serving as the city's primary north-south transportation route.

### 2.2.2 Henderson Boulevard

In the study area, Henderson Boulevard is classified as a collector roadway and has one lane in each direction. This roadway has intermittent paved shoulders with no sidewalks and has a posted speed limit of 35 mph. Henderson Boulevard serves as a link between Old Highway 99 and Yelm Highway.

### 2.2.3 79th Avenue

79th Avenue is classified as a collector roadway and has one lane in each direction. This roadway provides sidewalks along portions of each side of the road and has a posted speed limit of 35 mph. 79th Avenue provides access to residential developments located on the east side of the corridor.

### 2.2.4 88th Avenue

88th Avenue is classified as a collector roadway and has one lane in each direction. As 88th Avenue transitions to Tilley Road it provides one lane in each direction with a two-way-center-left-turn-lane. This roadway provides paved shoulders and sidewalks and has a posted speed limit of 50 mph. Bike lanes are provided at the transition to Tilley Road. 88th Avenue serves as a link between Old Highway 99 and Tilley Road, which provides access to rural Thurston County.

### 2.2.5 93rd Avenue

93rd Avenue transitions through several roadway classifications, near Old Highway 99 it is classified as a collector roadway and near I-5 the roadway is an arterial. Between 88th Avenue and I-5, 93rd Avenue changes between collector and arterial as it travels through City and UGA limits. 93rd Avenue provides one lane in each direction and has a posted speed limit of 50 mph between Old Highway 99 and Tilley Road, before reducing to a posted speed limit of 40 mph west of Tilley Road. This roadway serves as a connection to the south and west portions of the City of Tumwater and provides access to and from I-5.

A summary of the existing intersection channelization and control type for each of the study intersections is provided in **Figure 2.**

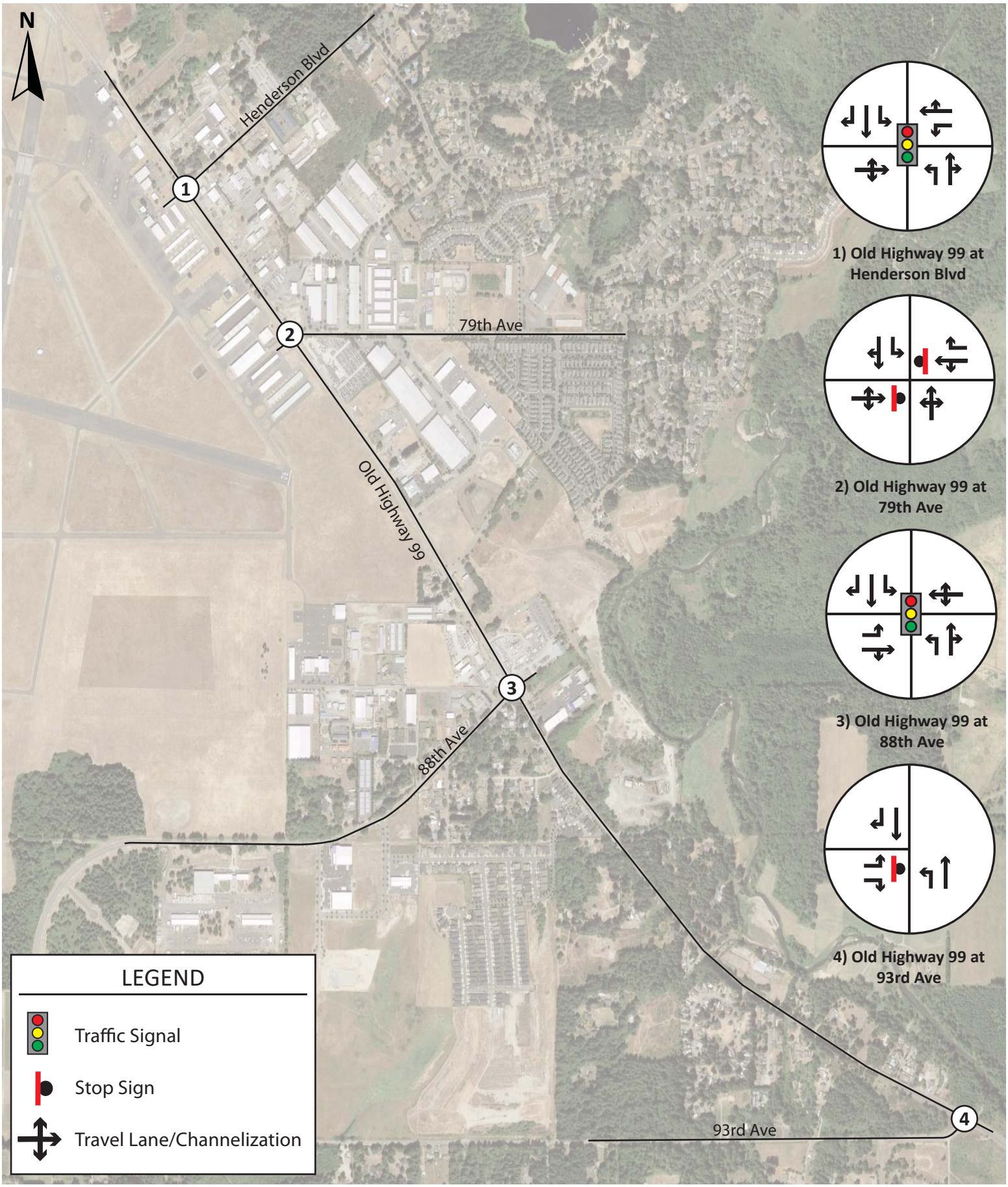
## 2.3 Traffic Volume Data

Traffic Count Consultants, Inc (TC2), a transportation data collection service, provided peak period turning movement counts for the study intersections. The counts were conducted between 7:00 am - 9:00 am and between 4:00 pm - 6:00 pm on Wednesday, March 04, 2020 at the following locations:

- Old Highway 99/Henderson Boulevard
- Old Highway 99/79th Avenue
- Old Highway 99/88th Avenue
- Old Highway 99/93rd Avenue

The morning and evening peak traffic periods were selected as the appropriate time periods because they represent the peak commute hours and create the highest level of activity at the study intersections.

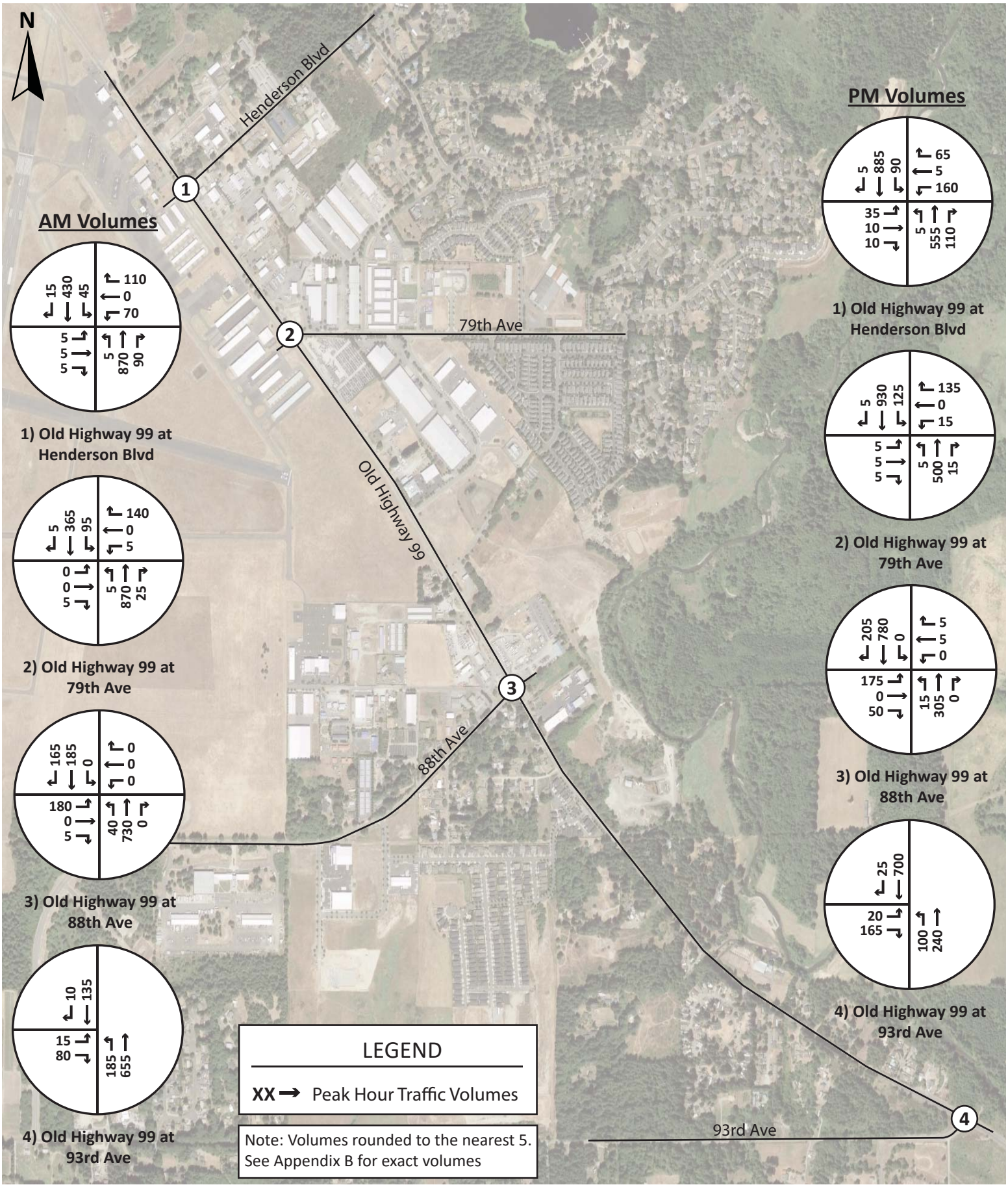
**Figure 3** shows the existing 2020 AM and PM peak hour traffic volumes for the study intersections. The turning movement count diagrams are provided in **Appendix A**.




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 2
Existing Channelization




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 3
Existing 2020 AM & PM Peak Hour Traffic Volumes

# 3 Future Conditions

## 3.1 Travel Demand Model

The traffic volume projections used in this analysis were calculated using the Thurston Regional Planning Council (TRPC) Emme/4 transportation demand model. The model, prepared by TRPC, has been most recently updated to represent 2015 traffic conditions. The model provides AM and PM peak hour traffic assignments.

TRPC has prepared a 2040 model scenario that includes the regionally adopted household and employment projections for the region. The 2040 scenario also includes all roadway improvements identified in the current Thurston County Regional Transportation Plan (RTP).

## 3.2 Traffic Volume Forecasts

Using the outputs from the TRPC travel demand models, baseline 2025 and 2040 volume forecasts were prepared. These forecasts were calculated using the annual model volume growth added to the existing turning movement counts at each study intersection. The projected 2025 AM and PM peak hour volumes are provided on **Figure 4**.

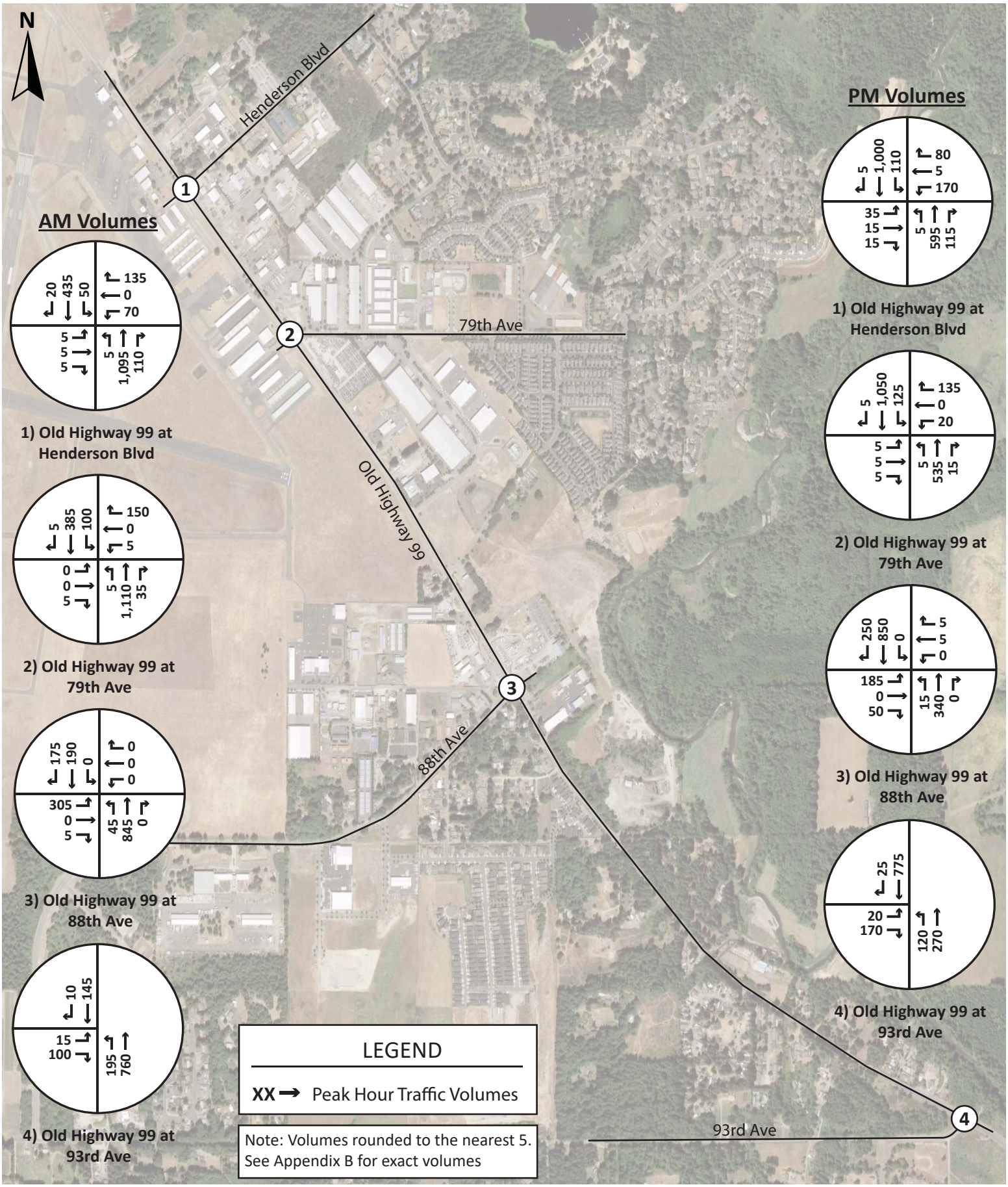
The growth contained in the 2040 demand model for the area along the study corridor was evaluated and found to be minimal. To provide a more conservative long-range forecast, an evaluation of the vacant properties along the study corridor was performed. Based on the amount of available land and the current zoning, additional development was assumed and incorporated into the long-range traffic forecast.

### 3.2.1 Adjustment to the 2040 Baseline Traffic Volume Forecast

To calculate a more conservative 2040 volume forecast an assessment of the vacant property along the study corridor was performed. With the Olympia Regional Airport located on much of the western side of the corridor, the vacant land assessment was primarily performed on the east side of the corridor. Between Henderson Boulevard and 88$^{th}$ Avenue there is approximately 46.25 of vacant land. In discussions with the City it was determined that 80% of this land would be considered built out for the 2040 horizon, resulting in approximately 37 acres of additional development. The current zoning for this entire area is light industrial. An assessment of other developments in the vicinity suggest approximately 40% of the total property contains buildings, with the rest dedicated to access, parking and stormwater treatment. Using 40% for the building coverage, approximately 14.8 acres, or 650,000 square feet, was determined as the amount of additional development.

The vehicle trip generation for the additional development potentialwas estimated using the trip generation rates contained in the 10$^{th}$ edition of the Trip Generation Manual by the *Institute of Transportation Engineers (ITE)*. The land-use category “Warehousing” (land-use code 150) and “General Light Industrial” (land-use code 110) were used.

**Table 1** shows the trip generation characteristics for Warehousing and General Light Industrial for the AM and PM peak periods.




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 4
2025 Baseline AM & PM Peak Hour Traffic Volumes

**Table 1. AM and PM Peak Hour Trip Generation Characteristics – Baseline**

| ITE Land Use (LU) | Unit | Trip Rate | Enter % | Exit % |
|---|---|---|---|---|
| **AM Peak Period** | | | | |
| Warehousing | 1,000-sq ft | 0.17 | 77% | 23% |
| General Light Industrial | 1,000-sq ft | 0.70 | 88% | 12% |
| **PM Peak Period** | | | | |
| Warehousing | 1,000-sq ft | 0.19 | 27% | 73% |
| General Light Industrial | 1,000-sq ft | 0.63 | 13% | 87% |

The total trip generation is calculated by applying the unit measure for each land use category to the appropriate trip generation rate. The trip generation is shown in **Table 2** for AM and PM peak periods.

**Table 2. AM and PM Peak Period Trip Generation**

| Land Use | Unit | Total Trips | Enter | Exit |
|---|---|---|---|---|
| **AM Peak Period** | | | | |
| Warehousing | 325.00 | 55 | 43 | 12 |
| General Light Industrial | 325.00 | 228 | 200 | 28 |
| ***Total Trips*** | - | ***283*** | ***243*** | ***40*** |
| **PM Peak Period** | | | | |
| Warehousing | 325.00 | 62 | 17 | 45 |
| General Light Industrial | 325.00 | 205 | 27 | 178 |
| ***Total Trips*** | - | ***267*** | ***44*** | ***223*** |

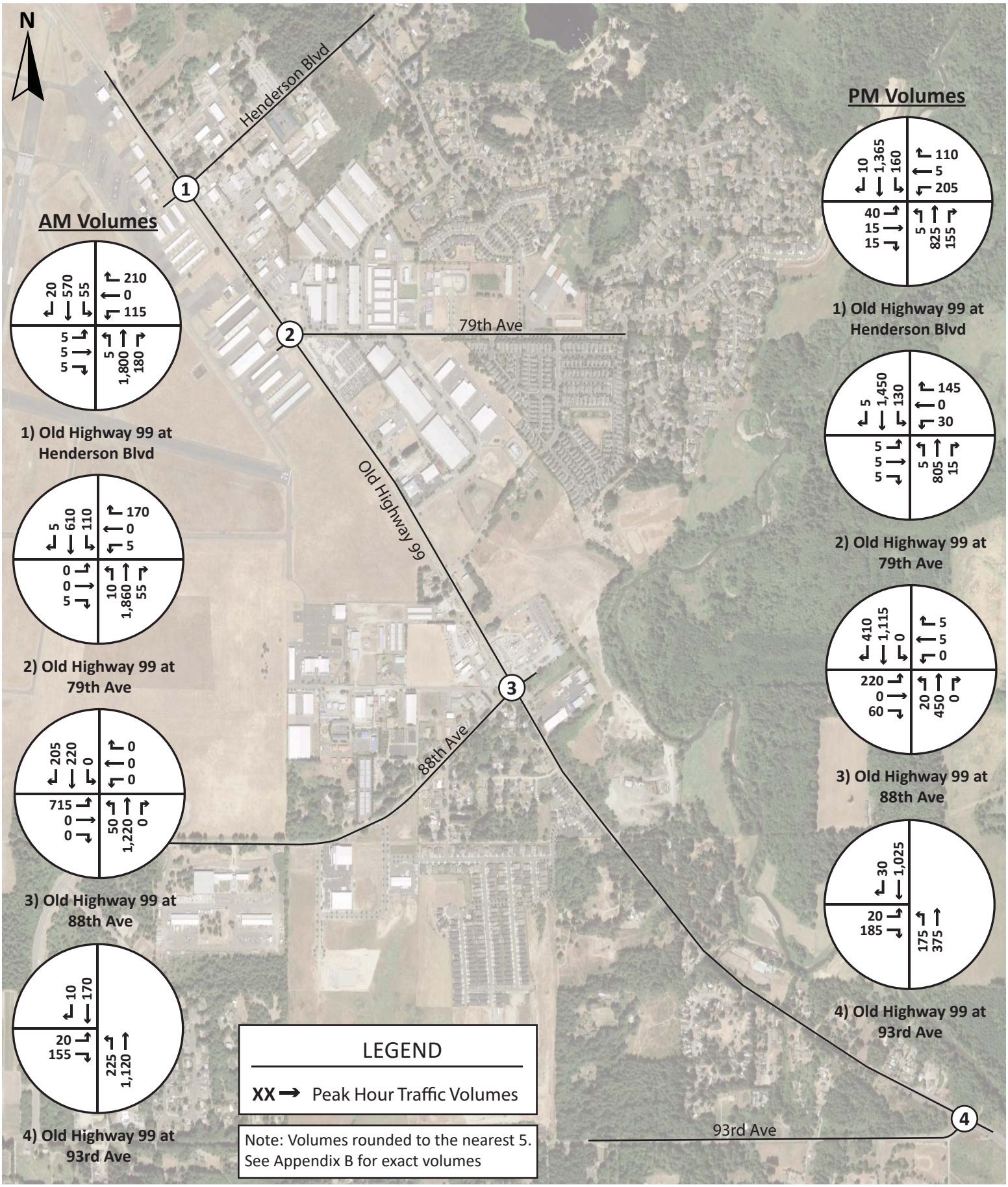
This volume was assigned to the study area using the following distribution patterns from the TRPC travel demand model:

- 15% to/from 88th Avenue
- 15% to/from Henderson Boulevard
- 15% to/from the south on Old Highway 99
- 55% to/from the north on Old Highway 99

These volumes were added to the 2040 baseline forecast volumes described above to produce the modified baseline volumes used in the operational analysis. The 2040 AM and PM peak hour baseline volumes are provided on **Figure 5**.

## 3.3 Comparison to Tumwater Transportation Plan

The City of Tumwater's Transportation Plan, published in 2016, recommended Old Highway 99 from 73rd Avenue to 88th Avenue be widened to five lanes. An initial step to validate that recommendation is to compare the current PM peak hour volume forecasts to the volume forecasts prepared in the Transportation Plan. The total entering volumes for each of the study intersections were compared to determine if the current 2040 volume forecasts are consistent with the previous volume forecast. These volumes are provided in **Table 3**.




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 5
2040 Baseline AM & PM Peak Hour Traffic Volumes

**Table 3. PM Peak Hour 2040 Volume Comparison**

| Intersection | Master Plan Volume | Current Volumes | Volume Delta |
|---|---|---|---|
| Old Hwy 99/Henderson Blvd | 2,725 | 2,910 | +185 |
| Old Hwy 99/79th Ave | 2,415 | 2,580 | +165 |
| Old Hwy 99/88th Ave | 2,125 | 2,275 | +150 |
| Old Hwy 99/93rd Ave | 1,670 | 1,810 | +140 |

At each of the study intersections the current 2040 traffic volume forecast is similar to but higher than the traffic volume forecasts from the 2016 Transportation Plan. This indicates that the recommendations from the Transportation Plan are still valid.

## 3.4 Sensitivity Analysis Scenario

In addition to calculating some of the additional growth potential along the study corridor, the City recognizes the potential for property along the corridor to be rezoned in the future, allowing for higher trip generation potential. Given the potential attractiveness of the adjacent properties once the corridor improvement project is constructed, it is anticipated that the property located at each of the controlled intersections could redevelop to commercial/retail uses and generate much higher traffic volumes at the intersections. To ensure that the study intersections are designed to accommodate this higher growth potential an additional 2040 volume forecast scenario was prepared.

All of the growth in this sensitivity scenario is assumed to be commercial/retail. An estimate of the total acreage that could develop/redevelop at each intersection was prepared. A building coverage factor of 25% was then applied to the total acreage to determine the amount of square footage. Below is a description of each study intersection.

### 3.4.1 Old Highway 99/Henderson Boulevard

The property in each corner of the intersection was evaluated for redevelopment potential. As part of this sensitivity analysis the property in the north and east corners of the intersection (east of Old Highway 99) were both assumed to redevelop. West of Old Highway 99 is the Olympia Regional Airport. This portion of the airport property has some vacant property and office buildings. The west corner of the intersection was also assumed to redevelop to a commercial/retail use. In total, this redevelopment potential amounted to 5.5 acres, which equates to approximately 60,000 sqft.

### 3.4.2 Old Highway 99/79th Avenue

For this intersection the property on the west side of Old Highway 99, which is the Olympia Regional Airport, contains airplane hangars. None of this property was assumed to redevelop. On the east side of Old Highway 99 the northeast corner has recently been developed. For this scenario only the property to the southeast was assumed to redevelop. The existing pick-a-part business in this property will be impacted by the proposed reconfiguration of the intersection (assumed roundabout project) and half of the property was assumed to redevelop for this scenario (2 acres) which equates to approximately 25,000 sqft.

### 3.4.3 Old Highway 99/88th Avenue

At this intersection the property to the northwest, which contains the Kiperts retail store, was assumed to remain as is. The existing auto pawn property on the east side of Old Highway 99 was assumed to redevelop. The existing single-family homes southwest of the intersection are currently zones as mixed use. Given this zoning half of the neighborhood was assumed to redevelop as well. Together this equates to roughly 13 acres and 145,000 sqft.

### 3.4.4 Old Highway 99/93rd Avenue

This intersection is located at the end of the study corridor and was considered too far away from the City to redevelop with commercial/retail activity. No additional growth was added at this location.

### 3.4.5 Sensitivity Analysis Volume Calculations

Based on the development/redevelopment potential at the different study intersections, the sensitivity analysis includes 230,000 square feet. The vehicle trip generation was estimated using the land-use category "Shopping Center" (land-use code 820). This land use category includes a wide range of commercial and retail uses and should represent the variety of development that could occur if these areas were rezoned.

**Table 4** shows the trip generation characteristics for Shopping Center for the AM and PM peak periods.

**Table 4. AM and PM Peak Hour Shopping Center (LU 820) Trip Generation – Sensitivity Scenario**

| Shopping Center (LU 820) | Unit | Trip Rate | Enter % | Exit % |
|---|---|---|---|---|
| AM Peak Period | 1,000-sq ft | 0.94 | 62% | 38% |
| PM Peak Period | 1,000-sq ft | Equation[1] | 48% | 52% |

1. See appendix B for equation rates

For the PM peak period the ITE Trip Generation Manual has a fitted curve equation for the shopping center land use. This equation adjusts the trip rate based on the size of the development. The trip generation calculations were done for the square footages at each intersection. The detailed trip calculations are included in **Appendix B.**

The total trip generation is calculated by applying the unit measure for each land use category to the appropriate trip generation rate. The trip generation is shown in **Table 5** for AM and PM peak periods.

**Table 5. AM and PM Peak Hour Shopping Center (LU 820) Trip Generation – Sensitivity Scenario**

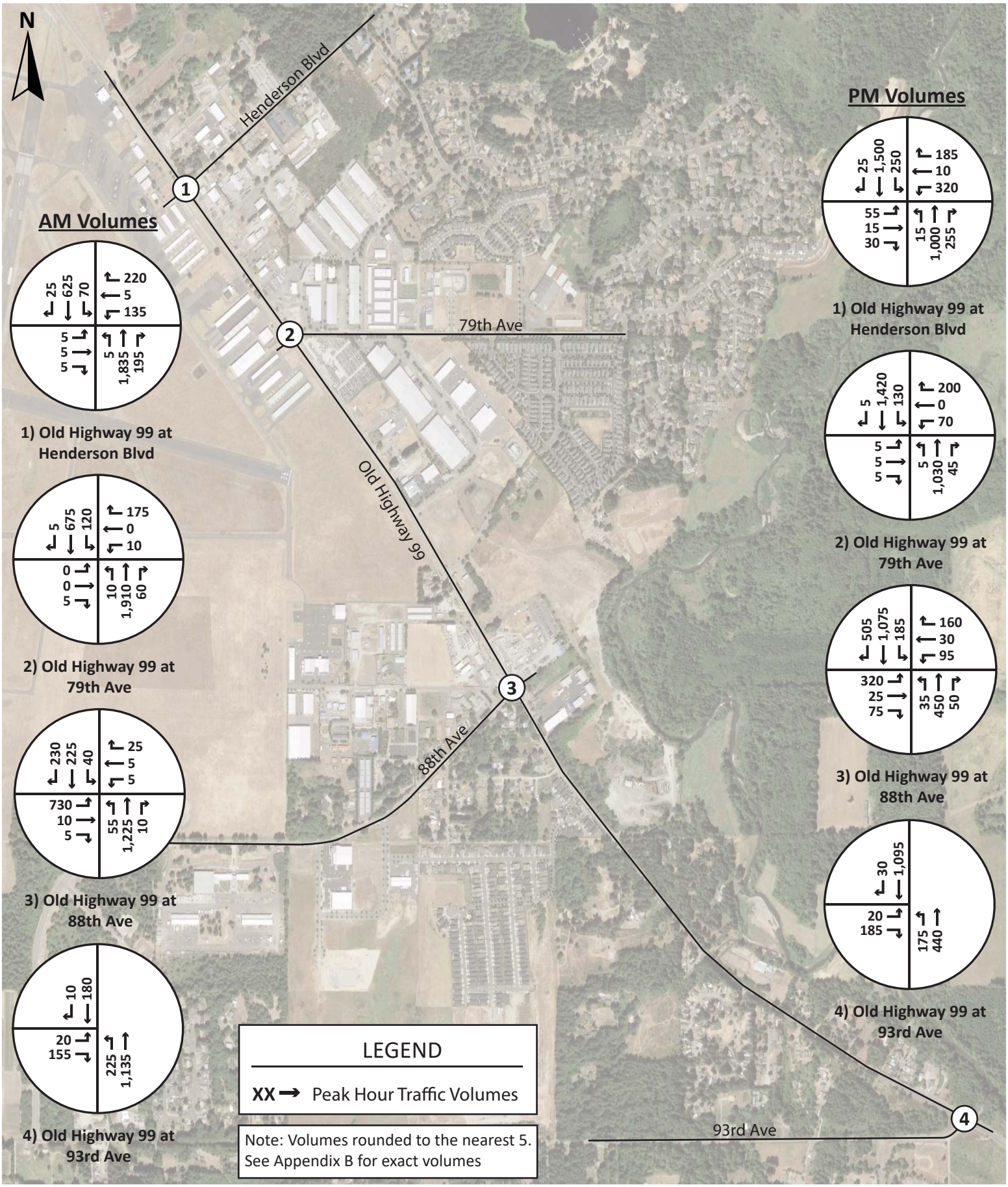
| Shopping Center (LU 820) | Unit | Total Trips | Enter | Exit |
|---|---|---|---|---|
| AM Peak Period | 230.00 | 216 | 134 | 82 |
| PM Peak Period | 230.00 | 1,411 | 678 | 733 |

These trips were assigned to the study corridor using the same distribution outlined above in section 3.2.1. This assignment was then added to the 2040 baseline volumes to produce the 2040 sensitivity analysis scenario volumes. The total entering volumes for each of the study intersections with and without the additional sensitivity volumes are provided in **Table 6** to help illustrate the amount of additional traffic with the sensitivity scenario.

**Table 6. 2040 Volume Comparison With Sensitivity Scenario**

| Intersection | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | Baseline | Sensitivity | Volume Delta | Baseline | Sensitivity | Volume Delta |
| Old Hwy 99/Henderson Blvd | 2,960 | 3,125 | +165 | 2,910 | 3,670 | +760 |
| Old Hwy 99/79th Ave | 2,825 | 2,960 | +135 | 2,580 | 3,205 | +625 |
| Old Hwy 99/88th Ave | 2,410 | 2,560 | +150 | 2,275 | 3,005 | +730 |
| Old Hwy 99/93rd Ave | 1,700 | 1,730 | +30 | 1,810 | 1,950 | +140 |

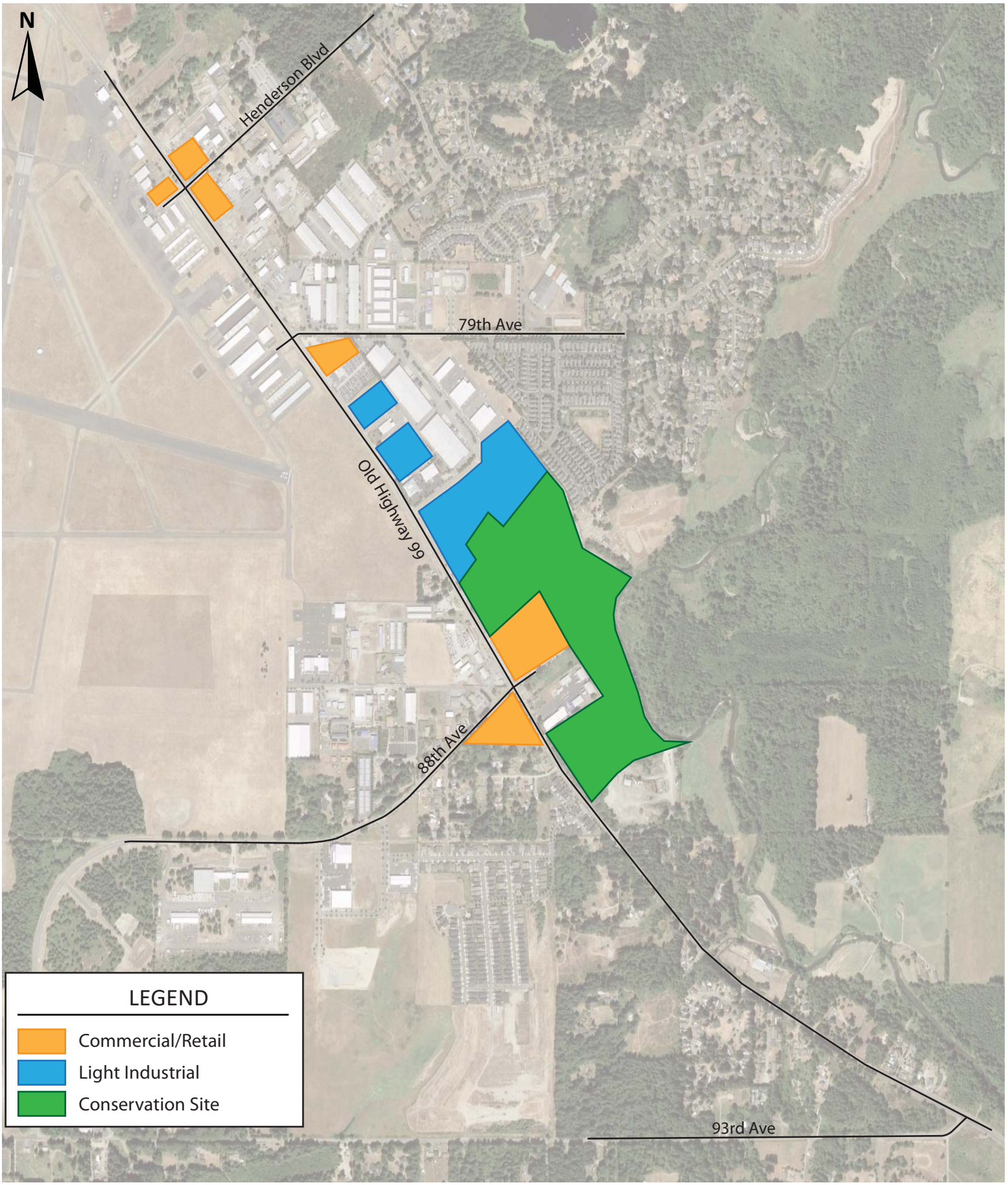
The AM and PM peak hour 2040 sensitivity scenario volumes are provided in **Figure 6**. The land included in the modified baseline trip generation and sensitivity scenario trip generation is shown on **Figure 7**.




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 6
2040 Projected Sensitivity Scenario
AM & PM Peak Hour Traffic Volumes




SCJ ALLIANCE
CONSULTING SERVICES

Old Highway 99 Corridor Study
Tumwater, Washington

Figure 7
Locations of Additional Growth

# 4 Traffic Operations Analysis

Traffic analyses were conducted to identify any deficiencies within the study area for the AM peak hour and PM peak hour for the 2020 base year and the 2025 and 2040 project opening year.

## 4.1 Level of Service

The acknowledged source for determining overall capacity for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB).

Intersection analysis for stop control and traffic signal intersections was performed using the Synchro software package. This software implements the methods of the 6th Edition HCM. For the roundabout intersection alternatives, the Sidra software package was used. Capacity analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a street or highway during a specific time interval. LOS ranges from A (very little delay) to F (long delays and congestion).

The Tumwater 2016 Transportation Plans identifies a LOS D standard for intersections within city limits.

### 4.1.1 Intersection Operations

For signalized intersections, the overall LOS grade represents the weighted average of all movements at the intersection. For intersections under minor street stop-sign control, the LOS of the most difficult movement (typically the minor street left turn) represents the intersection level of service. The LOS/delay criteria for stop sign-controlled intersections are different than for signalized intersections because driver expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay. The following table shows the Level of Service criteria for stop-controlled intersections and signalized intersections

**Table 7. Level of Service Criteria for Intersections**

| Level of Service | Signalized Intersection Average Control Delay (seconds/vehicle) | Stop-Controlled Intersection Average Control Delay (seconds/vehicle) |
|---|---|---|
| A | ≤ 10 | ≤ 10 |
| B | > 10-20 | > 10-15 |
| C | > 20-35 | > 15-25 |
| D | > 35-55 | > 25-35 |
| E | > 55-80 | > 35-50 |
| F | > 80 | > 50 |

## 4.2 2040 Intersection Analysis

The analysis was conducted for the following scenarios:

- Existing 2020 traffic volumes
- Projected 2040 baseline traffic volumes without the corridor widening
- Projected 2040 baseline traffic volumes with the corridor widening
- Projected 2040 baseline traffic volumes with the corridor widening and intersection improvements
- Projected 2040 sensitivity scenario traffic volumes with the corridor widening and intersection improvements.

The operational analysis results of the study intersections for the projected 2040 scenarios are provided in **Table 8** for the AM peak hour and **Table 9** for the PM peak hour. The LOS analysis worksheets are included in **Appendix C.** Existing intersection channelization is provided in Figure 2.

**Table 8. Existing and 2040 AM Peak Hour Intersection Level of Service**

| | | | | Projected 2040 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing Channelization | | | | Roundabout Control | | | |
| | | Existing 2020 | | No Widening | | With Widening | | With Widening | | With Sensitivity Scenario | |
| | Intersection | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) |
| 1 | Old Highway 99/ Henderson Boulevard | C (22.4) | 0.96 (NB) | F (192.7) | 1.55 (NB) | C (22.2) | 0.91 (NB) | A (5.6) | 0.55 (WB) | A (6.0) | 0.69 (NB) |
| 2 | Old Highway 99/ 79th Avenue | F (59.0) | 0.51 (WB) | F (300+) | 1.98 (WB) | F (300+) | 0.68 (WB) | A (5.2) | 0.66 (NB) | A (5.4) | 0.68 (NB) |
| 3 | Old Highway 99/ 88th Avenue | A (9.0) | 0.82 (NB) | F (120.7)) | 1.25 (NB) | D (35.6) | 0.92 (NB) | B (11.5) | 0.71 (NB) | B (14.3) | 0.79 (NB) |
| 4 | Old Highway 99/ 93rd Avenue | C (23.9) | 0.16 (NB) | D (34.0) | 0.18 (EB) | D (34.0) | 0.18 (EB) | A (5.6) | 0.94 (NB) | A (4.8) | 0.66 (NB) |

**Table 9. Existing and 2040 PM Peak Hour Intersection Level of Service**

| | | | | Projected 2040 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing Channelization | | | | Roundabout Control | | | |
| | | Existing 2020 | | No Widening | | With Widening | | With Widening | | With Sensitivity Scenario | |
| | Intersection | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) |
| 1 | Old Highway 99/ Henderson Boulevard | B (13.0) | 0.84 (NB) | D (40.7) | 0.98 (SB) | B (11.9) | 0.78 (SB) | A (6.1) | 0.56 (SB) | A (8.4) | 0.73 (SB) |
| 2 | Old Highway 99/ 79th Avenue | F (115.0) | 0.36 (WB) | F (300+) | 6.20 (WB) | F (300+) | 4.43 (WB) | A (5.4) | 0.51 (SB) | A (5.3) | 0.61 (SB) |
| 3 | Old Highway 99/ 88th Avenue | A (9.6) | 0.83 (SB) | B (12.8) | 0.89 (SB) | A (7.4) | 0.63 (SB) | A (4.8) | 0.54 (SB) | A (8.9) | 0.77 (EB) |
| 4 | Old Highway 99/ 93rd Avenue | C (21.5) | 0.46 (EB) | E (37.7) | 0.65 (EB) | E (37.7) | 0.65 (EB) | A (7.3) | 0.82 (SB) | A (5.5) | 0.60 (SB) |

### 4.2.1 Old Highway 99/Henderson Boulevard

This intersection operates under traffic signal control. In the 2040 horizon with no intersection or corridor improvements the intersection is projected to operate at LOS F in the AM peak hour and LOS D in the PM peak hour. The AM peak hour is projected to have a very high volume of traffic traveling northbound into the City (1,800) which cannot be accommodated by a single travel lane. The PM peak hour volumes are more balanced between northbound and southbound, but the volume to capacity ratios for the southbound direction are approaching 1.0, indicating likely queue and congestion issues with a single travel lane.

With the corridor widening to provide two through lanes in each direction of Old Highway 99 the existing traffic signal is projected to operate within the LOS D standard during both peak periods. Roundabout control for the 2040 baseline volumes was also analyzed, resulting in LOS A during both peak periods. The roundabout geometry included two travel lanes in each direction of Old Highway 99 and single-lane approaches for Henderson Boulevard. This roundabout layout was assessed with the sensitivity scenario and is projected to remain at LOS A.

### 4.2.2 Old Highway 99/79th Avenue

This intersection operates under stop-sign control for the eastbound and westbound approaches. The intersection currently operates at LOS F for both peak periods and is projected to worsen significantly in 2040, with and without the corridor widening improvement. With construction of a roundabout the intersection is projected to operate at LOS A for both peak periods. The roundabout geometry included two travel lanes in each direction of Old Highway 99 and single-lane approaches for Henderson Boulevard. This roundabout layout was assessed with the sensitivity scenario and is projected to remain at LOS A.

### 4.2.3 Old Highway 99/88th Avenue

This intersection operates under traffic signal-control, with the southbound approach, which serves the existing auto pawn business, often gated. This intersection currently operates at LOS A during both peak periods. In the 2040 horizon with no corridor widening the intersection is projected to operate at LOS F in the AM peak hour and LOS B in the PM peak hour. As with the Henderson Boulevard intersection, the AM peak hour has a large volume of traffic traveling north on Old Highway 99, coming from further south on Old Highway 99 and from 88th Avenue. During the PM peak hour, the southbound v/c ratio is approaching 0.90, suggesting that approach will experience some queue and congestion issues.

With the corridor widening to provide two through lanes in each direction of Old Highway 99 the existing traffic signal is projected to operate at LOS D for the AM peak hour and LOS A for the PM peak hour. Roundabout control for the 2040 baseline volumes was also analyzed. A single-lane roundabout was evaluated, to determine if roundabout control would remove the need for corridor widening at the intersection. However, given the high volume of northbound traffic during the AM peak hour a multi-lane roundabout will be necessary. This roundabout layout assumed single lane approaches for both 88th Avenue approaches. Additionally, the analysis included short approach and departure lanes for the south leg, as Old Highway 99 transitions to a 2/3 lane corridor. This layout results in a LOS B during the AM peak hour and a LOS A in the PM peak hour. This roundabout layout was assessed with the sensitivity scenario and is projected to maintain the same level of service results.

### 4.2.4 Old Highway 99/93rd Avenue

This is a tee intersection which operates under stop-sign control for the eastbound approach. To maximize the existing control the intersection has been improved over the years to include acceleration lanes for both directions of Old Highway 99, providing a northbound acceleration lane for the 93rd Ave eastbound left-turns and a southbound acceleration lane for the 93rd Ave eastbound right-turns.

This intersection currently operates at LOS C during the AM peak hour and LOS D during the PM peak hour. In the 2040 baseline the intersection is projected to operate at LOS D for the AM peak hour and LOS E during the PM peak hour. The corridor widening is not planned to extend down to 93rd Avenue and had no impact on the intersection operational analysis. With a LOS E result in the PM peak hour this intersection falls below the City's LOS standard. A single-lane roundabout was analyzed for both peak hours and was found to operate within the City of Tumwater's LOS standard, but with directional v/c ratios (NB in the AM and SB in the PM) that are approaching 1.0. For the sensitivity scenario analysis, the NB approach during the AM peak hour and the SB approach during the PM peak hour both experienced v/c ratios that produced significant queues. To accommodate this, additional entry lanes for both Old Highway 99 approaches were assessed. The south leg contains a through lane and left-turn lane and two exit lanes, the north leg provides two through lanes and a single exit lane and the 93rd Avenue leg provides a single approach and departure lane. This configuration is projected to operate at LOS A in 2040 for the baseline and the sensitivity scenarios.

The roundabout layouts for each of the study intersections are provided in **Appendix C**.

## 4.3 2025 Opening Year Intersection Analysis

The 2040 operational analysis has validated the Transportation Plan improvements and have provided the long-term needs of each study intersection. The project has identified a 2025 opening year and this analysis has been performed to identify which improvements are anticipated to be needed during the opening year. The study intersections have been analyzed for the following scenarios:

- Existing 2020 traffic volumes
- Projected 2025 baseline traffic volumes without the corridor widening
- Projected 2025 baseline traffic volumes with the corridor widening
- Projected 2025 baseline traffic volumes with the corridor widening and intersection improvements

The operational analysis results of the study intersections for the projected 2025 scenarios are provided in **Table 10** for the AM peak hour and **Table 11** for the PM peak hour. The LOS analysis worksheets are included in **Appendix C.** Existing intersection channelization is provided in Figure 2.

**Table 10. 2025 AM Peak Hour Intersection Level of Service**

| | Intersection | Existing 2020 | | Projected 2025 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | No Widening | | With Widening | | Roundabout Control | |
| | | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) |
| 1 | Old Highway 99/ Henderson Boulevard | C (22.4) | 0.96 (NB) | C (28.7) | 0.96 (NB) | B (11.6) | 0.76 (NB) | A (5.0) | 0.43 (NB) |
| 2 | Old Highway 99/ 79th Avenue | F (59.0) | 0.51 (WB) | F (121.5) | 0.70 (WB) | F (75.9) | 0.36 (WB) | A (5.0) | 0.39 (NB) |
| 3 | Old Highway 99/ 88th Avenue | A (9.0) | 0.82 (NB) | B (13.0) | 0.85 (NB) | A (8.5) | 0.60 (NB) | A (6.4) | 0.38 (NB) |
| 4 | Old Highway 99/ 93rd Avenue | C (23.9) | 0.16 (NB) | C (22.4) | 0.14 (NB) | C (22.4) | 0.14 (NB) | A (5.2) | 0.77 (NB) |

**Table 11. 2025 PM Peak Hour Intersection Level of Service**

| | Intersection | Existing 2020 | | Projected 2025 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | No Widening | | With Widening | | Roundabout Control | |
| | | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) | LOS (delay) | Worst v/c (dir) |
| 1 | Old Highway 99/ Henderson Boulevard | C (13.0) | 0.84 (NB) | B (15.8) | 0.86 (NB) | B (10.1) | 0.71 (SB) | A (5.9) | 0.43 (SB) |
| 2 | Old Highway 99/ 79th Avenue | F (115.0) | 0.36 (WB) | F (156.4) | 0.51 (WB) | F (60.8) | 0.26 (WB) | A (4.8) | 0.40 (SB) |
| 3 | Old Highway 99/ 88th Avenue | A (9.6) | 0.83 (SB) | A (8.4) | 0.80 (SB) | A (6.4) | 0.52 (SB) | A (5.3) | 0.42 (SB) |
| 4 | Old Highway 99/ 93rd Avenue | C (21.5) | 0.46 (EB) | C (22.8) | 0.47 (EB) | C (22.8) | 0.47 (EB) | A (5.7) | 0.63 (SB) |

### 4.3.1 Old Highway 99/Henderson Boulevard

This intersection is projected to operate at LOS C for the AM peak hour and LOS B for the PM peak hour. However, given the high northbound v/c ratio during the AM peak hour it is anticipated that widening of Old Highway 99 through this intersection will be needed for the 2025 horizon. The southbound v/c ratio during the PM peak hour (0.84) is also fairly high but may be accommodated with a single travel lane.

### 4.3.2 Old Highway 99/79th Avenue

Given the existing operational failure at this location during both peak periods, intersection improvements are warranted for the 2025 horizon. With the ultimate configuration roundabout, with two travel lanes in each direction of Old Highway 99, the intersection is projected to operate at LOS A for both peak periods, with no v/c ratio above 0.40. This suggests a single-lane roundabout may be sufficient as an opening condition. A single-lane roundabout is projected to also operate at LOS A for both peak periods, although the NB v/c ratio during the AM peak hour is projected to be 0.88, suggesting it would soon need to provide additional capacity.

### 4.3.3 Old Highway 99/88th Avenue

This intersection is currently operating at LOS A during each peak hour and is projected to operate at LOS B or better during both peak hours for the 2025 horizon without any corridor widening. This suggests that the southern portion of the Old Highway 99 study corridor may not require widening as soon as the northern portion.

### 4.3.4 Old Highway 99/93rd Avenue

This intersection currently provides acceleration lanes for both minor street stop-controlled movements, with those elements it is currently operating at LOS C for each peak hour. In the 2025 horizon this intersection is projected to remain at LOS C. This suggests that corridor or intersection improvements near 93rd Avenue will not be needed in the short term.

# 5 Summary/Conclusion

The City of Tumwater is conducting the *Old Highway 99 Corridor Study* to validate the transportation recommendations included in the *Tumwater City Plan 2036, Transportation Master Plan November 2016*. The plan recommends widening Old Highway 99 to 5 lanes from 73rd Avenue to 88th Avenue and widen to 3 lanes from 88th Avenue to 93rd Avenue. Included in the corridor improvement project was conversion of the two existing traffic signals, at Henderson Boulevard and 8th Avenue, to roundabouts. Additional projects in the Transportation Plan identified intersection improvements at 79th Avenue and 93rd Avenue, recommending roundabouts at both locations.

A summary of the key conclusions reached from this analysis includes:

- Based on the updated volume forecast and 2040 baseline operational analysis, each of the improvements identified in the Transportation Master Plan are still warranted.
- Based on the 2040 operational analysis, the existing study intersections operating under traffic signal control, Henderson Boulevard and 88th Avenue, are projected to operate within the City of Tumwater's LOS standard under traffic signal or roundabout control with the widened Old Highway 99 corridor improvement.
- The 79th Avenue intersection operates below the City's LOS standard today. With a widened corridor roundabout control is projected to operate at LOS A.
- The 93rd Avenue intersection currently operates at LOS C or better for both peak periods. In the 2040 horizon the PM peak hour is projected to operate at LOS E. Installation of a single lane roundabout is projected to operate at LOS A for both peak periods.
- Based on the 2025 opening year analysis the corridor widening will be needed for the northern portion of the study corridor.
- A sensitivity analysis should be performed to determine how far the widening will be needed for the opening year horizon.
- Additional sensitivity analysis should be conducted to determine when the roundabout improvements need to provide additional throughput on Old Highway 99.

# Appendix A

## Traffic Volume Counts

Prepared for: **SCJ Alliance**


## *Traffic Count Consultants, Inc.*

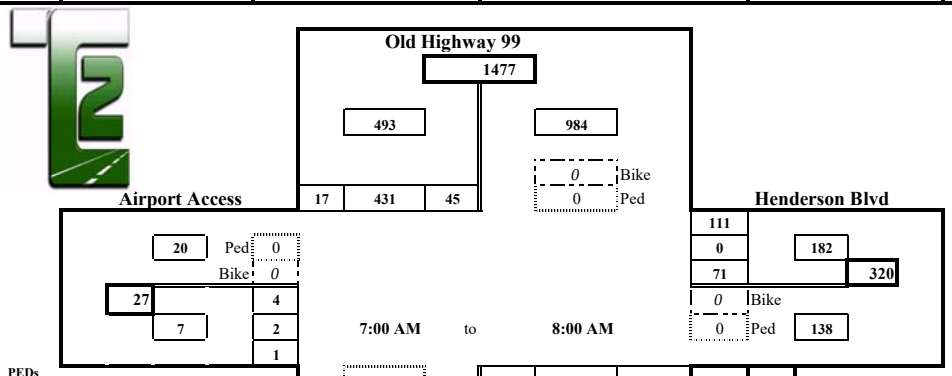
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE


**Intersection:** Old Highway 99 & Henderson Blvd **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) Henderson Blvd | | | | From West on (EB) Airport Access | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 7:15 A | 10 | 7 | 68 | 4 | 8 | 0 | 194 | 22 | 3 | 15 | 0 | 30 | 0 | 2 | 2 | 1 | 345 |
| 7:30 A | 3 | 14 | 119 | 3 | 6 | 0 | 214 | 28 | 0 | 18 | 0 | 27 | 0 | 0 | 0 | 0 | 423 |
| 7:45 A | 5 | 14 | 121 | 3 | 7 | 1 | 240 | 19 | 0 | 21 | 0 | 24 | 0 | 0 | 0 | 0 | 443 |
| 8:00 A | 6 | 10 | 123 | 7 | 7 | 2 | 221 | 22 | 1 | 17 | 0 | 30 | 0 | 2 | 0 | 0 | 434 |
| 8:15 A | 7 | 6 | 78 | 0 | 1 | 0 | 160 | 13 | 1 | 7 | 2 | 17 | 0 | 4 | 2 | 0 | 289 |
| 8:30 A | 5 | 5 | 81 | 3 | 10 | 1 | 195 | 20 | 0 | 12 | 0 | 13 | 0 | 1 | 0 | 1 | 332 |
| 8:45 A | 2 | 9 | 75 | 4 | 3 | 0 | 128 | 13 | 3 | 12 | 0 | 19 | 0 | 1 | 0 | 0 | 261 |
| 9:00 A | 12 | 8 | 85 | 3 | 6 | 1 | 122 | 21 | 0 | 11 | 3 | 14 | 0 | 1 | 0 | 0 | 269 |
| 9:15 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:30 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:45 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 50 | 73 | 750 | 27 | 48 | 5 | 1474 | 158 | 8 | 113 | 5 | 174 | 0 | 11 | 4 | 2 | 2796 |
| | Peak Hour: 7:00 AM to 8:00 AM | | | | | | | | | | | | | | | | |
| Total | 24 | 45 | 431 | 17 | 28 | 3 | 869 | 91 | 4 | 71 | 0 | 111 | 0 | 4 | 2 | 1 | 1645 |
| Approach | 493 | | | | 963 | | | | 182 | | | | 7 | | | | 1645 |
| %HV | 4.9% | | | | 2.9% | | | | 2.2% | | | | n/a | | | | 3.4% |
| PHF | 0.88 | | | | 0.93 | | | | 0.97 | | | | 0.35 | | | | 0.93 |




1772 *1.0 PHF Peak Hour Volume*

| | | PHF | %HV |
|---|---|---|---|
| | | EB | 0.35 | n/a |
| Check | | WB | 0.97 | 2.2% |
| In: | 1645 | NB | 0.93 | 2.9% |
| Out: | 1645 | SB | 0.88 | 4.9% |
| | | T Int. | 0.93 | 3.4% |

Conditions:

**PEDs Across:**

| | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 2 | 0 | 0 | 2 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 2 | 0 | 0 | 2 |

**Bicycles From:**

| | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | 0 |

Special Notes

SCJ20029M_01A

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

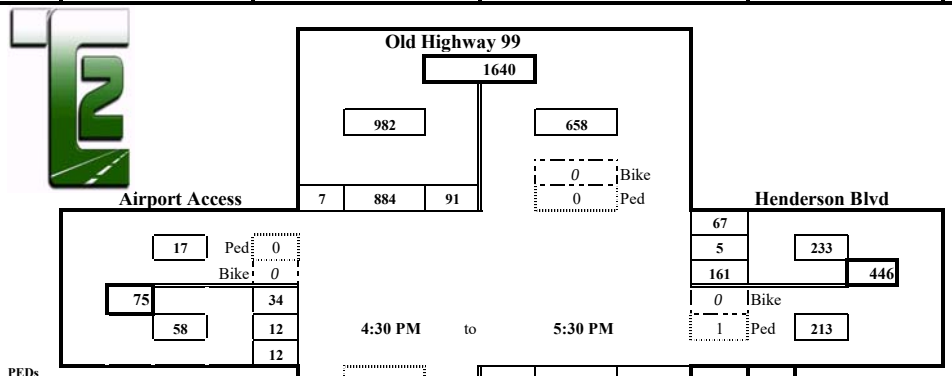
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & Henderson Blvd **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) Henderson Blvd | | | | From West on (EB) Airport Access | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 4:15 P | 8 | 25 | 223 | 2 | 4 | 0 | 148 | 14 | 0 | 32 | 0 | 21 | 0 | 8 | 3 | 3 | 479 |
| 4:30 P | 5 | 20 | 198 | 0 | 5 | 0 | 106 | 27 | 0 | 33 | 2 | 14 | 0 | 2 | 5 | 2 | 409 |
| 4:45 P | 4 | 17 | 210 | 2 | 5 | 2 | 170 | 30 | 0 | 30 | 0 | 14 | 0 | 9 | 4 | 2 | 490 |
| 5:00 P | 0 | 25 | 229 | 4 | 3 | 1 | 133 | 27 | 1 | 40 | 3 | 23 | 0 | 6 | 2 | 3 | 496 |
| 5:15 P | 4 | 26 | 238 | 1 | 4 | 1 | 140 | 31 | 1 | 41 | 1 | 23 | 0 | 10 | 5 | 3 | 520 |
| 5:30 P | 4 | 23 | 207 | 0 | 0 | 1 | 114 | 22 | 0 | 50 | 1 | 7 | 0 | 9 | 1 | 4 | 439 |
| 5:45 P | 4 | 23 | 183 | 0 | 3 | 1 | 95 | 15 | 1 | 34 | 0 | 14 | 0 | 2 | 1 | 1 | 369 |
| 6:00 P | 2 | 14 | 169 | 2 | 4 | 0 | 100 | 15 | 0 | 40 | 1 | 19 | 0 | 3 | 2 | 2 | 367 |
| 6:15 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 31 | 173 | 1657 | 11 | 28 | 6 | 1006 | 181 | 3 | 300 | 8 | 135 | 0 | 49 | 23 | 20 | 3569 |
| | Peak Hour: 4:30 PM to 5:30 PM | | | | | | | | | | | | | | | | |
| Total | 12 | 91 | 884 | 7 | 12 | 5 | 557 | 110 | 2 | 161 | 5 | 67 | 0 | 34 | 12 | 12 | 1945 |
| Approach | 982 | | | | 672 | | | | 233 | | | | 58 | | | | 1945 |
| %HV | 1.2% | | | | 1.8% | | | | 0.9% | | | | n/a | | | | 1.3% |
| PHF | 0.93 | | | | 0.83 | | | | 0.88 | | | | 0.81 | | | | 0.94 |




2080 *1.0 PHF Peak Hour Volume*

| | PHF | %HV |
|---|---|---|
| EB | 0.81 | n/a |
| WB | 0.88 | 0.9% |
| NB | 0.83 | 1.8% |
| SB | 0.93 | 1.2% |
| T Int. | 0.94 | 1.3% |

Check In: 1945 Out: 1945

Conditions:

**PEDs Across:**

| | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 1 | 0 | 1 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 1 | 0 | 1 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 2 | 0 | 2 |

**Bicycles From:**

| | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 1 | 0 | 0 | 1 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 1 | 0 | 0 | 1 |

Special Notes

SCJ20029M_01P

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

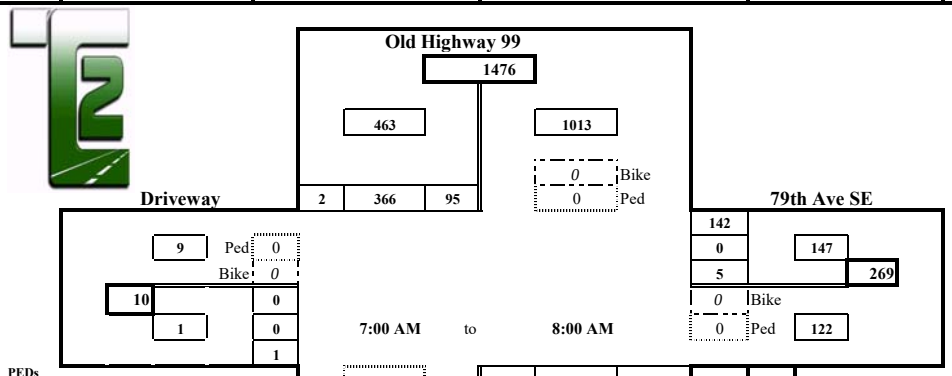
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 79th Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) 79th Ave SE | | | | From West on (EB) Driveway | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 7:15 A | 10 | 20 | 60 | 1 | 10 | 3 | 191 | 8 | 1 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 323 |
| 7:30 A | 3 | 24 | 103 | 0 | 4 | 0 | 214 | 6 | 5 | 2 | 0 | 33 | 0 | 0 | 0 | 0 | 382 |
| 7:45 A | 5 | 20 | 106 | 0 | 5 | 1 | 254 | 7 | 1 | 2 | 0 | 43 | 0 | 0 | 0 | 0 | 433 |
| 8:00 A | 5 | 31 | 97 | 1 | 7 | 3 | 212 | 6 | 1 | 1 | 0 | 26 | 0 | 0 | 0 | 1 | 378 |
| 8:15 A | 6 | 25 | 62 | 3 | 0 | 0 | 139 | 4 | 0 | 1 | 0 | 29 | 0 | 0 | 0 | 0 | 263 |
| 8:30 A | 6 | 17 | 73 | 1 | 6 | 0 | 180 | 5 | 3 | 4 | 0 | 34 | 0 | 0 | 0 | 2 | 316 |
| 8:45 A | 5 | 12 | 76 | 1 | 2 | 1 | 118 | 4 | 1 | 1 | 0 | 24 | 0 | 0 | 0 | 1 | 238 |
| 9:00 A | 10 | 22 | 62 | 0 | 7 | 0 | 121 | 8 | 0 | 4 | 0 | 23 | 0 | 0 | 0 | 0 | 240 |
| 9:15 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:30 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:45 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 50 | 171 | 639 | 7 | 41 | 8 | 1429 | 48 | 12 | 15 | 0 | 252 | 0 | 0 | 0 | 4 | 2573 |
| | Peak Hour: 7:00 AM to 8:00 AM | | | | | | | | | | | | | | | | |
| Total | 23 | 95 | 366 | 2 | 26 | 7 | 871 | 27 | 8 | 5 | 0 | 142 | 0 | 0 | 0 | 1 | 1516 |
| Approach | 463 | | | | 905 | | | | 147 | | | | 1 | | | | 1516 |
| %HV | 5.0% | | | | 2.9% | | | | 5.4% | | | | n/a | | | | 3.8% |
| PHF | 0.90 | | | | 0.86 | | | | 0.82 | | | | 0.25 | | | | 0.88 |




| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | **0** |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | 0 |

| | | PHF | %HV |
|---|---|---|---|
| | | EB | 0.25 | n/a |
| Check | | WB | 0.82 | 5.4% |
| In: | 1516 | NB | 0.86 | 2.9% |
| Out: | 1516 | SB | 0.90 | 5.0% |
| | | T Int. | 0.88 | 3.8% |

Conditions:

Special Notes

SCJ20029M_02A

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

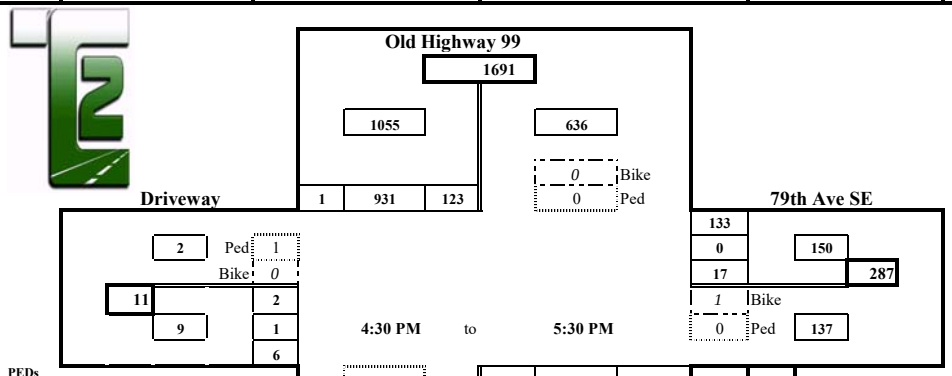
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 79th Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval Ending at | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) 79th Ave SE | | | | From West on (EB) Driveway | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 4:15 P | 1 | 41 | 212 | 1 | 6 | 0 | 118 | 3 | 1 | 5 | 0 | 39 | 0 | 0 | 0 | 4 | 423 |
| 4:30 P | 5 | 33 | 196 | 0 | 2 | 0 | 112 | 4 | 0 | 5 | 0 | 23 | 0 | 2 | 0 | 5 | 380 |
| 4:45 P | 2 | 27 | 209 | 0 | 5 | 0 | 140 | 4 | 1 | 3 | 0 | 41 | 0 | 0 | 1 | 3 | 428 |
| 5:00 P | 1 | 29 | 233 | 0 | 2 | 1 | 107 | 2 | 1 | 5 | 0 | 45 | 0 | 1 | 0 | 2 | 425 |
| 5:15 P | 3 | 35 | 263 | 1 | 5 | 0 | 138 | 4 | 1 | 6 | 0 | 27 | 0 | 0 | 0 | 1 | 475 |
| 5:30 P | 3 | 32 | 226 | 0 | 1 | 0 | 116 | 3 | 0 | 3 | 0 | 20 | 0 | 1 | 0 | 0 | 401 |
| 5:45 P | 2 | 26 | 194 | 0 | 2 | 0 | 82 | 2 | 1 | 4 | 0 | 15 | 0 | 1 | 0 | 2 | 326 |
| 6:00 P | 1 | 28 | 195 | 1 | 2 | 1 | 94 | 3 | 1 | 8 | 0 | 25 | 0 | 1 | 0 | 1 | 357 |
| 6:15 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 18 | 251 | 1728 | 3 | 25 | 2 | 907 | 25 | 6 | 39 | 0 | 235 | 0 | 6 | 1 | 18 | 3215 |
| | Peak Hour: 4:30 PM to 5:30 PM | | | | | | | | | | | | | | | | |
| Total | 9 | 123 | 931 | 1 | 13 | 1 | 501 | 13 | 3 | 17 | 0 | 133 | 0 | 2 | 1 | 6 | 1729 |
| Approach | 1055 | | | | 515 | | | | 150 | | | | 9 | | | | 1729 |
| %HV | 0.9% | | | | 2.5% | | | | 2.0% | | | | n/a | | | | 1.4% |
| PHF | 0.88 | | | | 0.89 | | | | 0.75 | | | | 0.56 | | | | 0.91 |




1900 *1.0 PHF Peak Hour Volume*

| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 1 | 1 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 1 | 1 |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 1 | 0 | 1 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 1 | 0 | 1 |

| | PHF | %HV |
|---|---|---|
| EB | 0.56 | n/a |
| WB | 0.75 | 2.0% |
| NB | 0.89 | 2.5% |
| SB | 0.88 | 0.9% |
| T Int. | 0.91 | 1.4% |

Check In: 1729 Out: 1729

Conditions:

Special Notes

SCJ20029M_02P

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

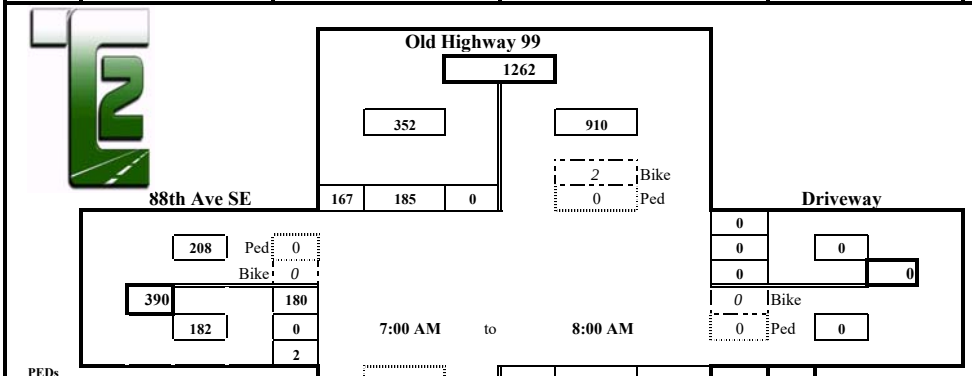
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 88th Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) Driveway | | | | From West on (EB) 88th Ave SE | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 7:15 A | 3 | 0 | 26 | 34 | 3 | 7 | 165 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 0 | 1 | 266 |
| 7:30 A | 2 | 0 | 49 | 44 | 2 | 6 | 178 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 326 |
| 7:45 A | 3 | 0 | 48 | 47 | 1 | 13 | 217 | 0 | 0 | 0 | 0 | 0 | 2 | 52 | 0 | 0 | 377 |
| 8:00 A | 2 | 0 | 62 | 42 | 1 | 15 | 170 | 0 | 0 | 0 | 0 | 0 | 2 | 46 | 0 | 1 | 336 |
| 8:15 A | 4 | 0 | 36 | 20 | 2 | 4 | 124 | 0 | 0 | 0 | 0 | 0 | 1 | 29 | 0 | 3 | 216 |
| 8:30 A | 5 | 0 | 39 | 38 | 0 | 2 | 140 | 0 | 0 | 0 | 0 | 0 | 1 | 35 | 0 | 1 | 255 |
| 8:45 A | 5 | 1 | 44 | 33 | 1 | 2 | 96 | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 1 | 2 | 204 |
| 9:00 A | 2 | 2 | 37 | 23 | 1 | 2 | 91 | 1 | 0 | 0 | 0 | 0 | 4 | 33 | 0 | 1 | 190 |
| 9:15 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:30 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:45 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 26 | 3 | 341 | 281 | 11 | 51 | 1181 | 1 | 0 | 0 | 0 | 0 | 14 | 302 | 1 | 9 | 2170 |
| Peak Hour: 7:00 AM to 8:00 AM | | | | | | | | | | | | | | | | | |
| Total | 10 | 0 | 185 | 167 | 7 | 41 | 730 | 0 | 0 | 0 | 0 | 0 | 7 | 180 | 0 | 2 | 1305 |
| Approach | 352 | | | | 771 | | | | 0 | | | | 182 | | | | 1305 |
| %HV | 2.8% | | | | 0.9% | | | | n/a | | | | 3.8% | | | | 1.8% |
| PHF | 0.85 | | | | 0.84 | | | | n/a | | | | 0.88 | | | | 0.87 |




1508 *1.0 PHF Peak Hour Volume*

| | PHF | %HV |
|---|---|---|
| EB | 0.88 | 3.8% |
| WB | n/a | n/a |
| NB | 0.84 | 0.9% |
| SB | 0.85 | 2.8% |
| T Int. | 0.87 | 1.8% |

Check In: 1305 Out: 1305

Conditions:

| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | **0** |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 1 | 0 | 0 | 0 | 1 |
| INT 02 | 1 | 1 | 0 | 0 | 2 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 2 | 1 | 0 | 0 | 3 |

Special Notes

SCJ20029M_03A

Prepared for: **SCJ Alliance**

***Traffic Count Consultants, Inc.***

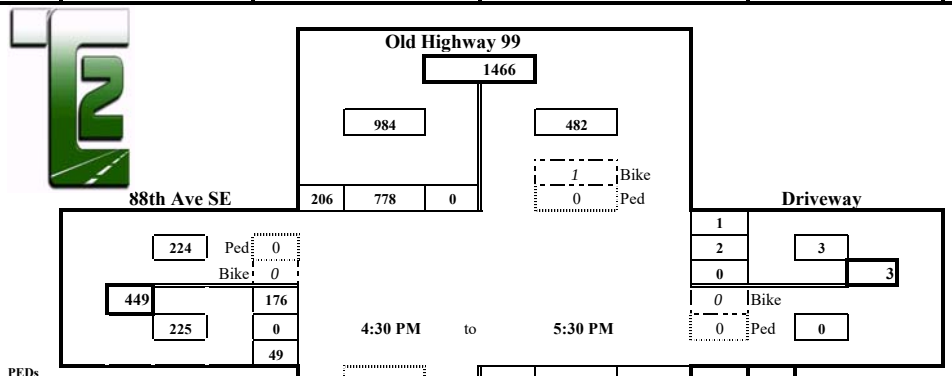
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 88th Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) Driveway | | | | From West on (EB) 88th Ave SE | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 4:15 P | 0 | 0 | 157 | 43 | 2 | 4 | 66 | 0 | 0 | 0 | 0 | 0 | 1 | 49 | 0 | 11 | 330 |
| 4:30 P | 1 | 0 | 161 | 46 | 0 | 1 | 63 | 0 | 0 | 0 | 0 | 0 | 2 | 38 | 0 | 2 | 311 |
| 4:45 P | 1 | 0 | 182 | 54 | 0 | 6 | 82 | 0 | 0 | 0 | 0 | 0 | 1 | 50 | 0 | 11 | 385 |
| 5:00 P | 0 | 0 | 181 | 60 | 0 | 3 | 67 | 0 | 0 | 0 | 0 | 1 | 2 | 32 | 0 | 9 | 353 |
| 5:15 P | 3 | 0 | 223 | 40 | 2 | 5 | 79 | 0 | 0 | 0 | 2 | 0 | 1 | 60 | 0 | 21 | 430 |
| 5:30 P | 2 | 0 | 192 | 52 | 0 | 2 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 8 | 365 |
| 5:45 P | 1 | 0 | 170 | 32 | 1 | 4 | 51 | 0 | 0 | 0 | 0 | 0 | 1 | 29 | 0 | 2 | 288 |
| 6:00 P | 0 | 0 | 163 | 45 | 0 | 0 | 65 | 0 | 0 | 1 | 0 | 0 | 0 | 28 | 0 | 3 | 305 |
| 6:15 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 8 | 0 | 1429 | 372 | 5 | 25 | 550 | 0 | 0 | 1 | 2 | 1 | 8 | 320 | 0 | 67 | 2767 |
| | Peak Hour: 4:30 PM to 5:30 PM | | | | | | | | | | | | | | | | |
| Total | 6 | 0 | 778 | 206 | 2 | 16 | 305 | 0 | 0 | 0 | 2 | 1 | 4 | 176 | 0 | 49 | 1533 |
| Approach | 984 | | | | 321 | | | | 3 | | | | 225 | | | | 1533 |
| %HV | 0.6% | | | | 0.6% | | | | n/a | | | | 1.8% | | | | 0.8% |
| PHF | 0.94 | | | | 0.91 | | | | 0.38 | | | | 0.69 | | | | 0.89 |




1720 *1.0 PHF Peak Hour Volume*

| | | PHF | %HV |
|---|---|---|---|
| | | EB | 0.69 | 1.8% |
| Check | | WB | 0.38 | n/a |
| In: | 1533 | NB | 0.91 | 0.6% |
| Out: | 1533 | SB | 0.94 | 0.6% |
| | | T Int. | 0.89 | 0.8% |

| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 1 | 1 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 1 | 1 |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 1 | 0 | 0 | 1 | 2 |
| INT 02 | 0 | 0 | 0 | 1 | 1 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 1 | 0 | 0 | 0 | 1 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 1 | 1 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 2 | 0 | 0 | 3 | 5 |

| N U's | S U's | E U's | W U's |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 1 | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 1 | 0 | 0 | 0 |

Special Notes

SCJ20029M_03P

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

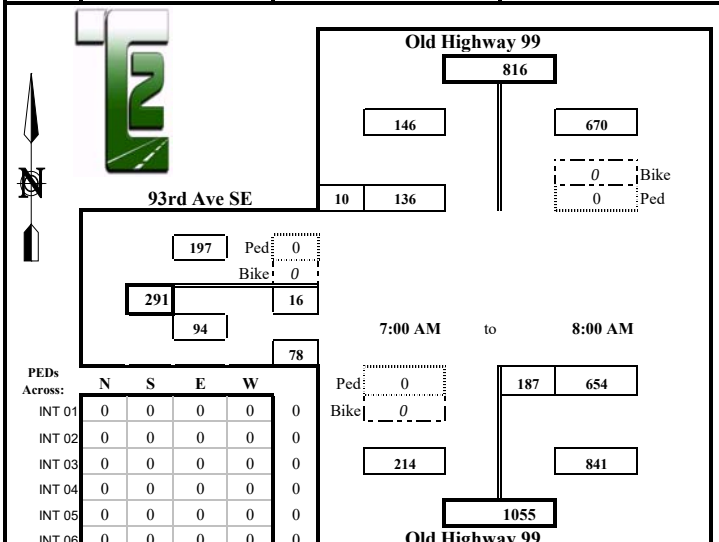
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 93rd Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) 0 | | | | From West on (EB) 93rd Ave SE | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 7:15 A | 1 | 0 | 22 | 1 | 5 | 32 | 153 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 14 | 226 |
| 7:30 A | 1 | 0 | 34 | 4 | 4 | 57 | 154 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 13 | 268 |
| 7:45 A | 2 | 0 | 33 | 3 | 2 | 71 | 196 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 25 | 331 |
| 8:00 A | 2 | 0 | 47 | 2 | 1 | 27 | 151 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 26 | 256 |
| 8:15 A | 2 | 0 | 30 | 1 | 2 | 32 | 116 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 19 | 200 |
| 8:30 A | 4 | 0 | 21 | 4 | 2 | 27 | 108 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 18 | 181 |
| 8:45 A | 2 | 0 | 48 | 3 | 4 | 18 | 83 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 36 | 190 |
| 9:00 A | 0 | 0 | 26 | 3 | 5 | 38 | 83 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 18 | 172 |
| 9:15 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:30 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:45 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 14 | 0 | 261 | 21 | 25 | 302 | 1044 | 0 | 0 | 0 | 0 | 0 | 13 | 27 | 0 | 169 | 1824 |
| Peak Hour: 7:00 AM to 8:00 AM | | | | | | | | | | | | | | | | | |
| Total | 6 | 0 | 136 | 10 | 12 | 187 | 654 | 0 | 0 | 0 | 0 | 0 | 6 | 16 | 0 | 78 | 1081 |
| Approach | 146 | | | | 841 | | | | 0 | | | | 94 | | | | 1081 |
| %HV | 4.1% | | | | 1.4% | | | | n/a | | | | 6.4% | | | | 2.2% |
| PHF | 0.74 | | | | 0.79 | | | | n/a | | | | 0.81 | | | | 0.82 |




| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | **0** |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | 0 |

Special Notes

1324 *1.0 PHF Peak Hour Volume*

| | | PHF | %HV |
|---|---|---|---|
| | EB | 0.81 | 6.4% |
| Check | WB | n/a | n/a |
| In: 1081 | NB | 0.79 | 1.4% |
| Out: 1081 | SB | 0.74 | 4.1% |
| | T Int. | 0.82 | 2.2% |

Conditions:

SCJ20029M_04A

Prepared for: **SCJ Alliance**

## *Traffic Count Consultants, Inc.*

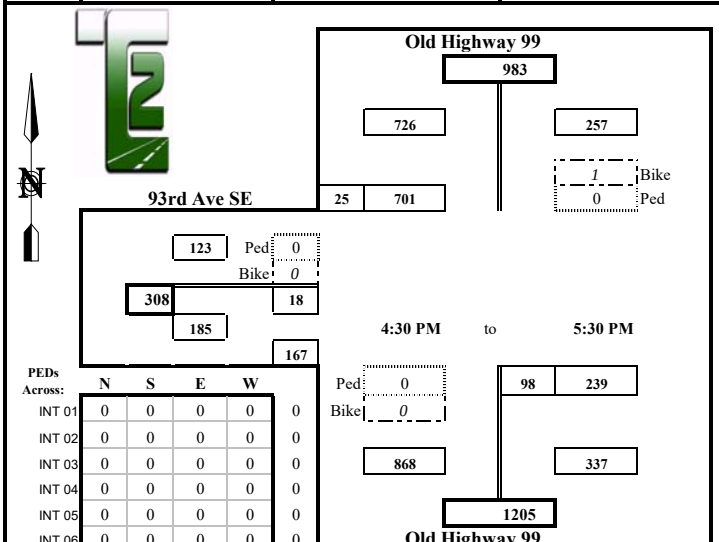
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** Old Highway 99 & 93rd Ave SE **Date of Count:** Wed 03/04/2020

**Location:** Tumwater, WA **Checked By:** Cameron

| Time Interval Ending at | From North on (SB) Old Highway 99 | | | | From South on (NB) Old Highway 99 | | | | From East on (WB) 0 | | | | From West on (EB) 93rd Ave SE | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 4:15 P | 0 | 0 | 136 | 6 | 2 | 21 | 45 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 29 | 239 |
| 4:30 P | 0 | 0 | 143 | 4 | 1 | 23 | 58 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 24 | 259 |
| 4:45 P | 0 | 0 | 164 | 6 | 2 | 17 | 70 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 50 | 309 |
| 5:00 P | 0 | 0 | 154 | 8 | 1 | 18 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 35 | 275 |
| 5:15 P | 2 | 0 | 207 | 3 | 2 | 36 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 37 | 347 |
| 5:30 P | 2 | 0 | 176 | 8 | 0 | 27 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 45 | 317 |
| 5:45 P | 1 | 0 | 149 | 2 | 0 | 25 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 36 | 253 |
| 6:00 P | 0 | 0 | 146 | 6 | 0 | 13 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 23 | 239 |
| 6:15 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 5 | 0 | 1275 | 43 | 8 | 180 | 429 | 0 | 0 | 0 | 0 | 0 | 4 | 32 | 0 | 279 | 2238 |
| | Peak Hour: 4:30 PM to 5:30 PM | | | | | | | | | | | | | | | | |
| Total | 4 | 0 | 701 | 25 | 5 | 98 | 239 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 0 | 167 | 1248 |
| Approach | 726 | | | | 337 | | | | 0 | | | | 185 | | | | 1248 |
| %HV | 0.6% | | | | 1.5% | | | | n/a | | | | 0.5% | | | | 0.8% |
| PHF | 0.86 | | | | 0.88 | | | | n/a | | | | 0.89 | | | | 0.90 |




| PEDs Across: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 0 | 0 | 0 | 0 | 0 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 0 | 0 | 0 | 0 | **0** |

| Bicycles From: | N | S | E | W | |
|---|---|---|---|---|---|
| INT 01 | 0 | 0 | 0 | 0 | 0 |
| INT 02 | 0 | 0 | 0 | 0 | 0 |
| INT 03 | 0 | 0 | 0 | 0 | 0 |
| INT 04 | 0 | 0 | 0 | 0 | 0 |
| INT 05 | 0 | 0 | 0 | 0 | 0 |
| INT 06 | 1 | 0 | 0 | 0 | 1 |
| INT 07 | 0 | 0 | 0 | 0 | 0 |
| INT 08 | 0 | 0 | 0 | 0 | 0 |
| INT 09 | | | | | 0 |
| INT 10 | | | | | 0 |
| INT 11 | | | | | 0 |
| INT 12 | | | | | 0 |
| | 1 | 0 | 0 | 0 | 1 |

Special Notes

1388 *1.0 PHF Peak Hour Volume*

| | | PHF | %HV |
|---|---|---|---|
| | EB | 0.89 | 0.5% |
| Check | WB | n/a | n/a |
| In: 1248 | NB | 0.88 | 1.5% |
| Out: 1248 | SB | 0.86 | 0.6% |
| | T Int. | 0.90 | 0.8% |

Conditions:

SCJ20029M_04P

# Appendix B

## Traffic Volume Calculations Worksheets

# Old Highway 99

## Trip Generation Summary - Baseline Modification

**Tumwater, WA**

| AM Peak Hour Trip Generation | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Plan Description | LUC | ITE Description | Variable | Value | ITE Rate | Distribution | | Total Trips | | | Pass-By Trips | | Net New Trips | | |
| | | | | | | In | Out | In | Out | Total | % | Total | In | Out | Total |
| Warehousing | 150 | Warehousing | ksqft | 325.000 | 0.17 | 77% | 23% | 43 | 12 | 55 | 0.0% | 0 | 43 | 12 | 55 |
| Light Industrial | 110 | General Light Industrial | ksqft | 325.000 | 0.70 | 88% | 12% | 200 | 28 | 228 | 0.0% | 0 | 200 | 28 | 228 |
| **Total** | | | | | | | | **243** | **40** | **283** | | **0** | **243** | **40** | **283** |

| PM Peak Hour Trip Generation | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Plan Description | LUC | ITE Description | Variable | Value | ITE Rate | Distribution | | Total Trips | | | Pass-By Trips | | Net New Trips | | |
| | | | | | | In | Out | In | Out | Total | % | Total | In | Out | Total |
| Warehousing | 150 | Warehousing | ksqft | 325.000 | 0.19 | 27% | 73% | 17 | 45 | 62 | 0.0% | 0 | 17 | 45 | 62 |
| Light Industrial | 110 | General Light Industrial | ksqft | 325.000 | 0.63 | 13% | 87% | 27 | 178 | 205 | 0.0% | 0 | 27 | 178 | 205 |
| **Total** | | | | | | | | **44** | **223** | **267** | | **0** | **44** | **223** | **267** |

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

# Old Highway 99

## Trip Generation Summary - Sensitivity Scenario

**Tumwater, WA**

**AM Peak Hour Trip Generation**

| Site Plan Description | LUC | ITE Description | Variable | Value | ITE Rate | Distribution | | Total Trips | | | Pass-By Trips | | Net New Trips | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | In | Out | In | Out | Total | % | Total | In | Out | Total |
| Mixed-Use Commercial - Henderson | 820 | Shopping Center | ksqft | 60.000 | 0.94 | 62% | 38% | 35 | 21 | 56 | 0.0% | 0 | 35 | 21 | 56 |
| Mixed-Use Commercial - 79th | 820 | Shopping Center | ksqft | 25.000 | 0.94 | 62% | 38% | 15 | 9 | 24 | 0.0% | 0 | 15 | 9 | 24 |
| Mixed-Use Commercial - 88th North | 820 | Shopping Center | ksqft | 100.000 | 0.94 | 62% | 38% | 58 | 36 | 94 | 0.0% | 0 | 58 | 36 | 94 |
| Mixed-Use Commercial - 88th South | 820 | Shopping Center | ksqft | 45.000 | 0.94 | 62% | 38% | 26 | 16 | 42 | 0.0% | 0 | 26 | 16 | 42 |
| **Total** | | | | | | | | **134** | **82** | **216** | | **0** | **134** | **82** | **216** |

**PM Peak Hour Trip Generation**

| Site Plan Description | LUC | ITE Description | Variable | Value | ITE Rate | Distribution | | Total Trips | | | Pass-By Trips | | Net New Trips | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | In | Out | In | Out | Total | % | Total | In | Out | Total |
| Mixed-Use Commercial - Henderson | 820 | Shopping Center | ksqft | 60.000 | 6.21 | 48% | 52% | 179 | 193 | 372 | 34.0% | 127 | 118 | 127 | 245 |
| Mixed-Use Commercial - 79th | 820 | Shopping Center | ksqft | 25.000 | 7.79 | 48% | 52% | 94 | 101 | 195 | 34.0% | 66 | 62 | 67 | 129 |
| Mixed-Use Commercial - 88th North | 820 | Shopping Center | ksqft | 100.000 | 5.43 | 48% | 52% | 261 | 282 | 543 | 34.0% | 185 | 172 | 186 | 358 |
| Mixed-Use Commercial - 88th South | 820 | Shopping Center | ksqft | 45.000 | 6.69 | 48% | 52% | 144 | 157 | 301 | 34.0% | 102 | 95 | 104 | 199 |
| **Total** | | | | | | | | **678** | **733** | **1,411** | | **480** | **447** | **484** | **931** |

820 Fitted Curve Equation - Henderson: **6.21**

820 Fitted Curve Equation - 79th: **7.79**

820 Fitted Curve Equation - 88th North: **5.43**

820 Fitted Curve Equation - 88th South: **6.69**

SCJ ALLIANCE
CONSULTING SERVICES

# Old Highway 99 Corridor

AM Peak Hour Volumes

Global Growth Rate: annual 1.00%

| | | | | Baseline | | | | | | | | | | Sensitivity Scenario | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intersection | Movement | | EXISTING 2020 VOLUMES | Existing Model | Future Model | Model 2040 Growth | Background 2040 Growth | Annual Growth Rate | Background 2025 Growth | Interim 2025 Volumes | Baseline 2040 | Baseline Modificaton | Modified 2040 Baseline | Sensitivity Scenario Primary | Sensitivity Scenario Pass-By | Sensitivity Scenario 2040 |
| | | L | 4 | - | - | 0 | 1 | 0 | 0 | 4 | 5 | 0 | 5 | 2 | 0 | 7 |
| | EB | T | 2 | - | - | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 |
| | | R | 1 | - | - | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 |
| 1 | | L | 71 | 146 | 152 | 6 | 0 | 0 | 1 | 72 | 77 | 37 | 114 | 21 | 0 | 135 |
| **Old Highway 99** | WB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| **Henderson Blvd** | | R | 111 | 164 | 264 | 100 | 0 | 0 | 25 | 136 | 211 | 0 | 211 | 10 | 0 | 221 |
| | | L | 3 | - | - | 0 | 1 | 0 | 0 | 3 | 4 | 0 | 4 | 2 | 0 | 6 |
| TMC Date: 03/04/2020 | NB | T | 869 | 1,139 | 2,047 | 908 | 0 | 0 | 226 | 1,095 | 1,777 | 22 | 1,799 | 34 | 0 | 1,833 |
| | | R | 91 | 120 | 201 | 81 | 0 | 0 | 20 | 111 | 172 | 6 | 178 | 19 | 0 | 197 |
| 7:00-8:00 | | L | 45 | 43 | 54 | 11 | 0 | 0 | 3 | 48 | 56 | 0 | 56 | 16 | 0 | 72 |
| PHF: 0.93 | SB | T | 431 | 575 | 582 | 7 | 0 | 0 | 2 | 433 | 438 | 134 | 572 | 54 | 0 | 626 |
| | | R | 17 | - | - | 0 | 3 | 0 | 1 | 18 | 20 | 0 | 20 | 3 | 0 | 23 |
| | | | | | | | | | | | 0 | | 0 | 163 | | 163 |
| | | L | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | R | 1 | - | - | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 2 | | L | 5 | 47 | 44 | -3 | 1 | 0 | 0 | 5 | 6 | 0 | 6 | 2 | 0 | 8 |
| **Old Highway 99** | WB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **79th Ave** | | R | 142 | 80 | 108 | 28 | 0 | 0 | 7 | 149 | 170 | 0 | 170 | 7 | 0 | 177 |
| | | L | 7 | - | - | 0 | 1 | 0 | 0 | 7 | 8 | 0 | 8 | 0 | 0 | 8 |
| TMC Date: 03/04/2020 | NB | T | 871 | 1,179 | 2,140 | 961 | 0 | 0 | 240 | 1,111 | 1,832 | 28 | 1,860 | 48 | 0 | 1,908 |
| | | R | 27 | 92 | 120 | 28 | 0 | 0 | 7 | 34 | 55 | 0 | 55 | 4 | 0 | 59 |
| 7:00-8:00 | | L | 95 | 94 | 110 | 16 | 0 | 0 | 4 | 99 | 111 | 0 | 111 | 11 | 0 | 122 |
| PHF: 0.88 | SB | T | 366 | 627 | 625 | -2 | 73 | 0 | 18 | 384 | 439 | 171 | 610 | 65 | 0 | 675 |
| | | R | 2 | - | - | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 |
| | | | | | | | | | | | 0 | | 0 | 137 | | 137 |
| | | L | 180 | 266 | 763 | 497 | 0 | 0 | 124 | 304 | 677 | 36 | 713 | 19 | 0 | 732 |
| | EB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 9 |
| | | R | 2 | 8 | 6 | -2 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 4 |
| 3 | | L | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| **Old Highway 99** | WB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| **88th Ave** | | R | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 26 |
| | | L | 41 | 60 | 33 | -27 | 8 | 0 | 2 | 43 | 49 | 0 | 49 | 4 | 0 | 53 |
| TMC Date: 03/04/2020 | NB | T | 730 | 906 | 1,358 | 452 | 0 | 0 | 113 | 843 | 1,182 | 36 | 1,218 | 7 | 0 | 1,225 |
| | | R | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 |
| 7:00-8:00 | | L | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 41 |
| PHF: 0.87 | SB | T | 185 | 249 | 278 | 29 | 0 | 0 | 7 | 192 | 214 | 6 | 220 | 4 | 0 | 224 |
| | | R | 167 | 328 | 264 | -64 | 33 | 0 | 8 | 175 | 200 | 6 | 206 | 22 | 0 | 228 |
| | | | | | | | | | | | 0 | | 0 | 152 | | 152 |
| | | L | 16 | 3 | 0 | -3 | 3 | 0 | 1 | 17 | 19 | 0 | 19 | 0 | 0 | 19 |
| | EB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | R | 78 | 105 | 184 | 79 | 0 | 0 | 20 | 98 | 157 | 0 | 157 | 0 | 0 | 157 |
| 4 | | L | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Old Highway 99** | WB | T | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **93rd Ave** | | R | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | L | 187 | 366 | 238 | -128 | 37 | 0 | 9 | 196 | 224 | 0 | 224 | 0 | 0 | 224 |
| TMC Date: 03/04/2020 | NB | T | 654 | 963 | 1,391 | 428 | 0 | 0 | 108 | 762 | 1,082 | 36 | 1,118 | 19 | 0 | 1,137 |
| | | R | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00-8:00 | | L | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PHF: 0.82 | SB | T | 136 | 256 | 282 | 26 | 0 | 0 | 7 | 143 | 162 | 6 | 168 | 11 | 0 | 179 |
| | | R | 10 | 1 | 1 | 0 | 2 | 0 | 1 | 11 | 12 | 0 | 12 | 0 | 0 | 12 |
| | | | | | | | | | | | | | 0 | 30 | | 1,728 |

SCJ ALLIANCE
CONSULTING SERVICES

# Old Highway 99 Corridor

PM Peak Hour Volumes

Global Growth Rate: annual 1.00%

| | | | | Baseline | | | | | | | | | | Sensitivity Scenario | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection** | **Movement** | | **EXISTING 2020 VOLUMES** | Existing Model | Future Model | Model 2040 Growth | Background 2040 Growth | Annual Growth Rate | Background 2025 Growth | **Interim 2025 Volumes** | Baseline 2040 Volumes | Baseline Modificaton | **Modified 2040 Baseline** | Sensitivity Scenario Primary | Sensitivity Scenario Pass-By | **Sensitivity Scenario 2040** |
| | | L | **34** | - | - | 0 | 7 | 1.0% | 2 | **36** | 41 | 0 | **41** | 12 | 4 | **57** |
| | EB | T | **12** | - | - | 0 | 2 | 1.0% | 1 | **13** | 14 | 0 | **14** | 3 | | **17** |
| | | R | **12** | - | - | 0 | 2 | 1.0% | 1 | **13** | 14 | 0 | **14** | 7 | 7 | **28** |
| 1 | | L | **161** | 79 | 118 | 39 | 0 | 1.2% | 10 | **171** | 200 | 7 | **207** | 80 | 34 | **321** |
| **Old Highway 99** | WB | T | **5** | - | - | 0 | 1 | 1.0% | 0 | **5** | 6 | 0 | **6** | 3 | | **9** |
| **Henderson Blvd** | | R | **67** | 37 | 80 | 43 | 0 | 3.2% | 11 | **78** | 110 | 0 | **110** | 58 | 18 | **186** |
| | | L | **5** | - | - | 0 | 1 | 1.0% | 0 | **5** | 6 | 0 | **6** | 6 | 4 | **16** |
| TMC Date: 03/04/2020 | NB | T | **557** | 587 | 732 | 145 | 0 | 1.3% | 36 | **593** | 702 | 123 | **825** | 196 | -22 | **999** |
| | | R | **110** | 80 | 91 | 11 | 0 | 0.5% | 3 | **113** | 121 | 34 | **155** | 83 | 18 | **256** |
| 4:30-5:30 | | L | **91** | 49 | 120 | 71 | 0 | 3.9% | 18 | **109** | 162 | 0 | **162** | 54 | 35 | **251** |
| PHF: 0.94 | SB | T | **884** | 688 | 1,143 | 455 | 0 | 2.6% | 115 | **999** | 1,339 | 24 | **1,363** | 181 | -42 | **1502** |
| | | R | **7** | - | - | 0 | 1 | 1.0% | 0 | **7** | 8 | 0 | **8** | 11 | 7 | **26** |
| | | | | | | | | | | | 0 | | **0** | 694 | | **694** |
| | | L | **2** | - | - | 0 | 0 | 1.0% | 0 | **2** | 2 | 0 | **2** | 0 | 0 | **2** |
| | EB | T | **1** | - | - | 0 | 0 | 1.0% | 0 | **1** | 1 | 0 | **1** | 0 | 0 | **1** |
| | | R | **6** | - | - | 0 | 1 | 1.0% | 0 | **6** | 7 | 0 | **7** | 0 | 0 | **7** |
| 2 | | L | **17** | 56 | 69 | 13 | 0 | 3.8% | 3 | **20** | 30 | 0 | **30** | 20 | 22 | **72** |
| **Old Highway 99** | WB | T | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| **79th Ave** | | R | **133** | 68 | 79 | 11 | 0 | 0.4% | 3 | **136** | 144 | 0 | **144** | 47 | 11 | **202** |
| | | L | **1** | - | - | 0 | 0 | 1.0% | 0 | **1** | 1 | 0 | **1** | 0 | 0 | **1** |
| TMC Date: 03/04/2020 | NB | T | **501** | 599 | 744 | 145 | 0 | 1.4% | 35 | **536** | 646 | 157 | **803** | 238 | -11 | **1,030** |
| | | R | **13** | 47 | 48 | 1 | 0 | 0.4% | 0 | **13** | 14 | 0 | **14** | 19 | 11 | **44** |
| 4:30-5:30 | | L | **123** | 66 | 71 | 5 | 0 | 0.2% | 1 | **124** | 128 | 0 | **128** | 43 | 22 | **193** |
| PHF: 0.91 | SB | T | **931** | 702 | 1,190 | 488 | 0 | 2.6% | 121 | **1,052** | 1,419 | 31 | **1,450** | 225 | -22 | **1653** |
| | | R | **1** | - | - | 0 | 0 | 1.0% | 0 | **1** | 1 | 0 | **1** | 0 | 0 | **1** |
| | | | | | | | | | | | 0 | | **0** | 592 | | **592** |
| | | L | **176** | 213 | 195 | -18 | 35 | 1.0% | 9 | **185** | 211 | 7 | **218** | 100 | 0 | **318** |
| | EB | T | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 26 | 0 | **26** |
| | | R | **49** | 28 | 17 | -11 | 10 | 1.0% | 2 | **51** | 59 | 0 | **59** | 15 | 0 | **74** |
| 3 | | L | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 28 | 65 | **93** |
| **Old Highway 99** | WB | T | **2** | - | - | 0 | 0 | 1.0% | 0 | **2** | 2 | 0 | **2** | 28 | 0 | **30** |
| **88th Ave** | | R | **1** | - | - | 0 | 0 | 1.0% | 0 | **1** | 1 | 0 | **1** | 130 | 27 | **158** |
| | | L | **16** | 18 | 13 | -5 | 3 | 1.0% | 1 | **17** | 19 | 0 | **19** | 14 | 0 | **33** |
| TMC Date: 03/04/2020 | NB | T | **305** | 361 | 500 | 139 | 0 | 2.3% | 35 | **340** | 444 | 6 | **450** | 27 | -27 | **450** |
| | | R | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 25 | 27 | **52** |
| 4:30-5:30 | | L | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 121 | 66 | **187** |
| PHF: 0.89 | SB | T | **778** | 466 | 768 | 302 | 0 | 1.9% | 74 | **852** | 1,080 | 33 | **1,113** | 29 | -66 | **1076** |
| | | R | **206** | 213 | 385 | 172 | 0 | 4.2% | 43 | **249** | 378 | 33 | **411** | 95 | 0 | **506** |
| | | | | | | | | | | | 0 | | **0** | 638 | | **638** |
| | | L | **18** | 2 | 4 | 2 | 0 | 0.6% | 1 | **19** | 20 | 0 | **20** | 0 | 0 | **20** |
| | EB | T | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| | | R | **167** | 175 | 193 | 18 | 0 | 0.5% | 4 | **171** | 185 | 0 | **185** | 0 | 0 | **185** |
| 4 | | L | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| **Old Highway 99** | WB | T | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| **93rd Ave** | | R | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| | | L | **98** | 93 | 171 | 78 | 0 | 4.0% | 20 | **118** | 176 | 0 | **176** | 0 | 0 | **176** |
| TMC Date: 03/04/2020 | NB | T | **239** | 378 | 509 | 131 | 0 | 2.7% | 32 | **271** | 370 | 6 | **376** | 66 | 0 | **442** |
| | | R | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| 4:30-5:30 | | L | **0** | - | - | 0 | 0 | 0.0% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** |
| PHF: 0.90 | SB | T | **701** | 492 | 782 | 290 | 0 | 2.1% | 74 | **775** | 991 | 33 | **1,024** | 72 | 0 | **1096** |
| | | R | **25** | 3 | 3 | 0 | 5 | 1.0% | 1 | **26** | 30 | 0 | **30** | 0 | 0 | **30** |
| | | | | | | | | | | | | | **0** | 138 | | **1,949** |

# Appendix C

## Capacity Analysis Worksheets

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 430 | 15 | 5 | 870 | 90 | 5 | 2 | 1 | 70 | 1 | 110 |
| Future Volume (vph) | 45 | 430 | 15 | 5 | 870 | 90 | 5 | 2 | 1 | 70 | 1 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 12.0 | 56.5 | 56.5 | 44.5 | 44.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 13.3% | 62.8% | 62.8% | 49.4% | 49.4% | | 37.2% | 37.2% | | 37.2% | 37.2% | |
| Maximum Green (s) | 6.5 | 51.0 | 51.0 | 39.0 | 39.0 | | 28.0 | 28.0 | | 28.0 | 28.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 65.8 | |
| Natural Cycle: 110 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 45 | 430 | 15 | 5 | 870 | 90 | 5 | 2 | 1 | 70 | 1 | 110 |
| Future Volume (veh/h) | 45 | 430 | 15 | 5 | 870 | 90 | 5 | 2 | 1 | 70 | 1 | 110 |
| 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 | 1856 | 1856 | 1856 | 1900 | 1900 | 1900 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 48 | 462 | 16 | 5 | 935 | 97 | 5 | 2 | 1 | 75 | 1 | 118 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 |
| Cap, veh/h | 78 | 1318 | 1117 | 650 | 978 | 101 | 122 | 42 | 10 | 278 | 1 | 168 |
| Arrive On Green | 0.04 | 0.72 | 0.72 | 0.59 | 0.59 | 0.59 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1739 | 1826 | 1547 | 909 | 1653 | 172 | 289 | 391 | 97 | 1414 | 13 | 1574 |
| Grp Volume(v), veh/h | 48 | 462 | 16 | 5 | 0 | 1032 | 8 | 0 | 0 | 75 | 0 | 119 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1826 | 1547 | 909 | 0 | 1825 | 777 | 0 | 0 | 1414 | 0 | 1587 |
| Q Serve(g_s), s | 1.7 | 6.0 | 0.2 | 0.1 | 0.0 | 34.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 |
| Cycle Q Clear(g_c), s | 1.7 | 6.0 | 0.2 | 0.1 | 0.0 | 34.1 | 4.7 | 0.0 | 0.0 | 2.8 | 0.0 | 4.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.09 | 0.62 | | 0.12 | 1.00 | | 0.99 |
| Lane Grp Cap(c), veh/h | 78 | 1318 | 1117 | 650 | 0 | 1079 | 174 | 0 | 0 | 278 | 0 | 169 |
| V/C Ratio(X) | 0.62 | 0.35 | 0.01 | 0.01 | 0.00 | 0.96 | 0.05 | 0.00 | 0.00 | 0.27 | 0.00 | 0.70 |
| Avail Cap(c_a), veh/h | 176 | 1451 | 1230 | 665 | 0 | 1109 | 650 | 0 | 0 | 744 | 0 | 692 |
| 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 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.1 | 3.3 | 2.5 | 5.4 | 0.0 | 12.3 | 25.8 | 0.0 | 0.0 | 26.9 | 0.0 | 27.7 |
| Incr Delay (d2), s/veh | 2.9 | 0.2 | 0.0 | 0.0 | 0.0 | 17.3 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 0.8 | 0.0 | 0.0 | 0.0 | 13.5 | 0.1 | 0.0 | 0.0 | 1.0 | 0.0 | 1.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 33.0 | 3.5 | 2.5 | 5.4 | 0.0 | 29.6 | 25.9 | 0.0 | 0.0 | 27.0 | 0.0 | 29.7 |
| LnGrp LOS | C | A | A | A | A | C | C | A | A | C | A | C |
| Approach Vol, veh/h | | 526 | | | 1037 | | | 8 | | | 194 | |
| Approach Delay, s/veh | | 6.1 | | | 29.5 | | | 25.9 | | | 28.7 | |
| Approach LOS | | A | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.4 | 43.5 | | 12.3 | | 51.8 | | 12.3 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 6.5 | 39.0 | | 28.0 | | 51.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 3.7 | 36.1 | | 6.7 | | 8.0 | | 6.6 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.8 | | 0.0 | | 2.8 | | 0.4 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 22.4 | |
| HCM 6th LOS | | C | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 140 | 95 | 365 | 5 | 5 | 870 | 25 |
| Future Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 140 | 95 | 365 | 5 | 5 | 870 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 |
| Mvmt Flow | 1 | 1 | 1 | 5 | 1 | 154 | 104 | 401 | 5 | 5 | 956 | 27 |

| Major/Minor | Minor1 | | | Minor2 | | | | Major1 | | | Major2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1669 | 1605 | 404 | 1593 | 1594 | 970 | 983 | 0 | 0 | 406 | 0 | 0 |
| Stage 1 | 612 | 612 | - | 980 | 980 | - | - | - | - | - | - | - |
| Stage 2 | 1057 | 993 | - | 613 | 614 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 77 | 106 | 651 | 85 | 105 | 303 | 691 | - | - | 1147 | - | - |
| Stage 1 | 484 | 487 | - | 297 | 324 | - | - | - | - | - | - | - |
| Stage 2 | 275 | 326 | - | 475 | 478 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 33 | 89 | 651 | 74 | 88 | 303 | 691 | - | - | 1147 | - | - |
| Mov Cap-2 Maneuver | 33 | 89 | - | 74 | 88 | - | - | - | - | - | - | - |
| Stage 1 | 411 | 413 | - | 252 | 321 | - | - | - | - | - | - | - |
| Stage 2 | 134 | 323 | - | 402 | 406 | - | - | - | - | - | - | - |

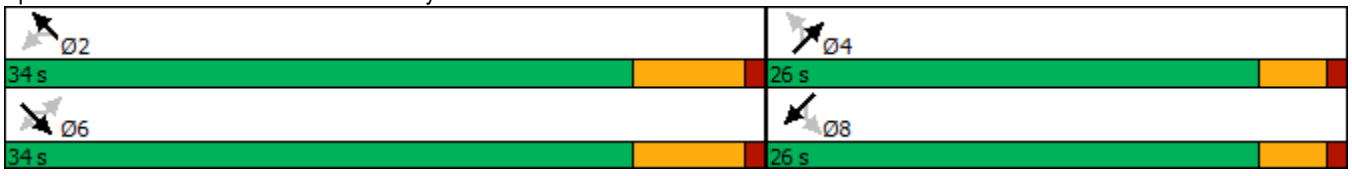
| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 59 | 29.7 | 2.3 | 0 |
| HCM LOS | F | D | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1147 | - | - | 70 | 76 | 303 | 691 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.047 | 0.087 | 0.508 | 0.151 | - | - |
| HCM Control Delay (s) | 8.2 | 0 | - | 59 | 56.8 | 28.5 | 11.1 | - | - |
| HCM Lane LOS | A | A | - | F | F | D | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.3 | 2.7 | 0.5 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 185 | 165 | 40 | 730 | 1 | 180 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (vph) | 1 | 185 | 165 | 40 | 730 | 1 | 180 | 1 | 5 | 1 | 1 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Total Split (%) | 56.7% | 56.7% | 56.7% | 56.7% | 56.7% | | 43.3% | 43.3% | | 43.3% | 43.3% | |
| Maximum Green (s) | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 60 | |
| Actuated Cycle Length: 54.1 | |
| Natural Cycle: 60 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 185 | 165 | 40 | 730 | 1 | 180 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (veh/h) | 1 | 185 | 165 | 40 | 730 | 1 | 180 | 1 | 5 | 1 | 1 | 1 |
| 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 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 213 | 190 | 46 | 839 | 1 | 207 | 1 | 6 | 1 | 1 | 1 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 0 | 0 |
| Cap, veh/h | 308 | 1008 | 854 | 673 | 1022 | 1 | 455 | 43 | 256 | 187 | 155 | 106 |
| Arrive On Green | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| Sat Flow, veh/h | 650 | 1856 | 1572 | 990 | 1883 | 2 | 1393 | 228 | 1367 | 306 | 826 | 566 |
| Grp Volume(v), veh/h | 1 | 213 | 190 | 46 | 0 | 840 | 207 | 0 | 7 | 3 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 650 | 1856 | 1572 | 990 | 0 | 1885 | 1393 | 0 | 1595 | 1698 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 2.2 | 2.3 | 0.9 | 0.0 | 13.6 | 5.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 13.7 | 2.2 | 2.3 | 3.1 | 0.0 | 13.6 | 5.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.86 | 0.33 | | 0.33 |
| Lane Grp Cap(c), veh/h | 308 | 1008 | 854 | 673 | 0 | 1024 | 455 | 0 | 298 | 447 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.21 | 0.22 | 0.07 | 0.00 | 0.82 | 0.45 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 446 | 1402 | 1188 | 883 | 0 | 1424 | 1021 | 0 | 947 | 1108 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 12.6 | 4.4 | 4.4 | 5.2 | 0.0 | 7.0 | 14.4 | 0.0 | 12.3 | 12.3 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 2.8 | 0.7 | 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 | 0.2 | 0.2 | 0.1 | 0.0 | 2.2 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 12.6 | 4.5 | 4.5 | 5.2 | 0.0 | 9.8 | 15.1 | 0.0 | 12.3 | 12.3 | 0.0 | 0.0 |
| LnGrp LOS | B | A | A | A | A | A | B | A | B | B | A | A |
| Approach Vol, veh/h | | 404 | | | 886 | | | 214 | | | 3 | |
| Approach Delay, s/veh | | 4.5 | | | 9.5 | | | 15.0 | | | 12.3 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 26.1 | | 10.9 | | 26.1 | | 10.9 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 28.0 | | 22.0 | | 28.0 | | 22.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 15.6 | | 7.2 | | 15.7 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 4.5 | | 0.5 | | 1.3 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 9.0 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 135 | 10 | 185 | 655 | 15 | 80 |
| Future Vol, veh/h | 135 | 10 | 185 | 655 | 15 | 80 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 82 | 82 | 82 | 82 | 82 | 82 |
| Heavy Vehicles, % | 4 | 4 | 1 | 1 | 6 | 6 |
| Mvmt Flow | 165 | 12 | 226 | 799 | 18 | 98 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 177 | 0 | 1416 | 165 |
| Stage 1 | - | - | - | - | 165 | - |
| Stage 2 | - | - | - | - | 1251 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.46 | 6.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.46 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.46 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.554 | 3.354 |
| Pot Cap-1 Maneuver | - | - | 1405 | - | 148 | 869 |
| Stage 1 | - | - | - | - | 855 | - |
| Stage 2 | - | - | - | - | 265 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1405 | - | 124 | 869 |
| Mov Cap-2 Maneuver | - | - | - | - | 209 | - |
| Stage 1 | - | - | - | - | 855 | - |
| Stage 2 | - | - | - | - | 222 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.8 | 11.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 209 | 869 | - | - | 1405 | - |
| HCM Lane V/C Ratio | 0.088 | 0.112 | - | - | 0.161 | - |
| HCM Control Delay (s) | 23.9 | 9.7 | - | - | 8.1 | - |
| HCM Lane LOS | C | A | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.3 | 0.4 | - | - | 0.6 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Future Volume (vph) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 11.2 | 116.4 | 116.4 | 105.2 | 105.2 | | 33.6 | 33.6 | | 33.6 | 33.6 | |
| Total Split (%) | 7.5% | 77.6% | 77.6% | 70.1% | 70.1% | | 22.4% | 22.4% | | 22.4% | 22.4% | |
| Maximum Green (s) | 5.7 | 110.9 | 110.9 | 99.7 | 99.7 | | 28.1 | 28.1 | | 28.1 | 28.1 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 150 | |
| Actuated Cycle Length: 132.9 | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Future Volume (veh/h) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| 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 | 1856 | 1856 | 1856 | 1900 | 1900 | 1900 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 53 | 458 | 21 | 5 | 1153 | 116 | 5 | 2 | 1 | 74 | 1 | 142 |
| 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 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 |
| Cap, veh/h | 68 | 1472 | 1248 | 714 | 1201 | 121 | 63 | 22 | 6 | 191 | 1 | 169 |
| Arrive On Green | 0.04 | 0.81 | 0.81 | 0.72 | 0.72 | 0.72 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1739 | 1826 | 1547 | 908 | 1659 | 167 | 156 | 205 | 52 | 1414 | 11 | 1576 |
| Grp Volume(v), veh/h | 53 | 458 | 21 | 5 | 0 | 1269 | 8 | 0 | 0 | 74 | 0 | 143 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1826 | 1547 | 908 | 0 | 1826 | 413 | 0 | 0 | 1414 | 0 | 1587 |
| Q Serve(g_s), s | 3.8 | 8.3 | 0.3 | 0.2 | 0.0 | 80.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 |
| Cycle Q Clear(g_c), s | 3.8 | 8.3 | 0.3 | 0.2 | 0.0 | 80.1 | 11.3 | 0.0 | 0.0 | 7.3 | 0.0 | 11.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.09 | 0.62 | | 0.12 | 1.00 | | 0.99 |
| Lane Grp Cap(c), veh/h | 68 | 1472 | 1248 | 714 | 0 | 1322 | 90 | 0 | 0 | 191 | 0 | 170 |
| V/C Ratio(X) | 0.78 | 0.31 | 0.02 | 0.01 | 0.00 | 0.96 | 0.09 | 0.00 | 0.00 | 0.39 | 0.00 | 0.84 |
| Avail Cap(c_a), veh/h | 78 | 1590 | 1347 | 768 | 0 | 1429 | 251 | 0 | 0 | 352 | 0 | 350 |
| 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 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 60.7 | 3.2 | 2.4 | 4.9 | 0.0 | 15.9 | 51.4 | 0.0 | 0.0 | 54.0 | 0.0 | 55.8 |
| Incr Delay (d2), s/veh | 30.4 | 0.1 | 0.0 | 0.0 | 0.0 | 14.8 | 0.2 | 0.0 | 0.0 | 0.5 | 0.0 | 4.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 1.9 | 0.1 | 0.0 | 0.0 | 30.3 | 0.2 | 0.0 | 0.0 | 2.3 | 0.0 | 4.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 91.1 | 3.3 | 2.4 | 4.9 | 0.0 | 30.6 | 51.5 | 0.0 | 0.0 | 54.5 | 0.0 | 60.0 |
| LnGrp LOS | F | A | A | A | A | C | D | A | A | D | A | E |
| Approach Vol, veh/h | | 532 | | | 1274 | | | 8 | | | 217 | |
| Approach Delay, s/veh | | 12.0 | | | 30.5 | | | 51.5 | | | 58.1 | |
| Approach LOS | | B | | | C | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.5 | 97.7 | | 19.2 | | 108.2 | | 19.2 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 5.7 | 99.7 | | 28.1 | | 110.9 | | 28.1 | | | | |
| Max Q Clear Time (g_c+I1), s | 5.8 | 82.1 | | 13.3 | | 10.3 | | 13.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 10.2 | | 0.0 | | 2.8 | | 0.4 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 28.7 | |
| HCM 6th LOS | | C | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 150 | 100 | 385 | 5 | 5 | 1110 | 35 |
| Future Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 150 | 100 | 385 | 5 | 5 | 1110 | 35 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 |
| Mvmt Flow | 1 | 1 | 1 | 5 | 1 | 158 | 105 | 405 | 5 | 5 | 1168 | 37 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1894 | 1833 | 408 | 1816 | 1817 | 1187 | 1205 | 0 | 0 | 410 | 0 | 0 |
| Stage 1 | 618 | 618 | - | 1197 | 1197 | - | - | - | - | - | - | - |
| Stage 2 | 1276 | 1215 | - | 619 | 620 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 54 | 77 | 648 | 59 | 77 | 226 | 569 | - | - | 1143 | - | - |
| Stage 1 | 480 | 484 | - | 224 | 256 | - | - | - | - | - | - | - |
| Stage 2 | 207 | 256 | - | 471 | 475 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 14 | 62 | 648 | 49 | 62 | 226 | 569 | - | - | 1143 | - | - |
| Mov Cap-2 Maneuver | 14 | 62 | - | 49 | 62 | - | - | - | - | - | - | - |
| Stage 1 | 391 | 394 | - | 183 | 253 | - | - | - | - | - | - | - |
| Stage 2 | 61 | 253 | - | 382 | 387 | - | - | - | - | - | - | - |

| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 121.5 | 52.4 | 2.6 | 0 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1143 | - | - | 34 | 51 | 226 | 569 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.093 | 0.124 | 0.699 | 0.185 | - | - |
| HCM Control Delay (s) | 8.2 | 0 | - | 121.5 | 85.3 | 51.1 | 12.8 | - | - |
| HCM Lane LOS | A | A | - | F | F | F | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.3 | 0.4 | 4.5 | 0.7 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (vph) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 53.0 | 53.0 | 53.0 | 53.0 | 53.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (%) | 66.3% | 66.3% | 66.3% | 66.3% | 66.3% | | 33.8% | 33.8% | | 33.8% | 33.8% | |
| Maximum Green (s) | 47.0 | 47.0 | 47.0 | 47.0 | 47.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 80 | |
| Actuated Cycle Length: 68.2 | |
| Natural Cycle: 65 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (veh/h) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| 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 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 200 | 184 | 47 | 889 | 1 | 321 | 1 | 5 | 1 | 1 | 1 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 0 | 0 |
| Cap, veh/h | 225 | 1026 | 870 | 633 | 1041 | 1 | 501 | 71 | 355 | 194 | 189 | 148 |
| Arrive On Green | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Sat Flow, veh/h | 620 | 1856 | 1572 | 1007 | 1883 | 2 | 1393 | 267 | 1334 | 402 | 710 | 556 |
| Grp Volume(v), veh/h | 1 | 200 | 184 | 47 | 0 | 890 | 321 | 0 | 6 | 3 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 620 | 1856 | 1572 | 1007 | 0 | 1885 | 1393 | 0 | 1601 | 1669 | 0 | 0 |
| Q Serve(g_s), s | 0.1 | 3.0 | 3.3 | 1.4 | 0.0 | 22.1 | 12.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 22.2 | 3.0 | 3.3 | 4.3 | 0.0 | 22.1 | 12.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.83 | 0.33 | | 0.33 |
| Lane Grp Cap(c), veh/h | 225 | 1026 | 870 | 633 | 0 | 1042 | 501 | 0 | 426 | 531 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.19 | 0.21 | 0.07 | 0.00 | 0.85 | 0.64 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 408 | 1575 | 1335 | 931 | 0 | 1600 | 709 | 0 | 665 | 774 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 19.9 | 6.2 | 6.3 | 7.3 | 0.0 | 10.5 | 19.3 | 0.0 | 15.0 | 14.9 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 2.9 | 1.4 | 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 | 0.7 | 0.7 | 0.2 | 0.0 | 6.1 | 3.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 19.9 | 6.3 | 6.4 | 7.3 | 0.0 | 13.4 | 20.7 | 0.0 | 15.0 | 14.9 | 0.0 | 0.0 |
| LnGrp LOS | B | A | A | A | A | B | C | A | B | B | A | A |
| Approach Vol, veh/h | | 385 | | | 937 | | | 327 | | | 3 | |
| Approach Delay, s/veh | | 6.4 | | | 13.1 | | | 20.6 | | | 14.9 | |
| Approach LOS | | A | | | B | | | C | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 36.6 | | 18.7 | | 36.6 | | 18.7 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 47.0 | | 23.0 | | 47.0 | | 23.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 24.1 | | 14.1 | | 24.2 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 6.5 | | 0.7 | | 1.5 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 13.0 | | | | | | | | | |
| HCM 6th LOS | | | B | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 145 | 10 | 195 | 760 | 15 | 100 |
| Future Vol, veh/h | 145 | 10 | 195 | 760 | 15 | 100 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 4 | 4 | 1 | 1 | 6 | 6 |
| Mvmt Flow | 153 | 11 | 205 | 800 | 16 | 105 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 164 | 0 | 1363 | 153 |
| Stage 1 | - | - | - | - | 153 | - |
| Stage 2 | - | - | - | - | 1210 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.46 | 6.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.46 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.46 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.554 | 3.354 |
| Pot Cap-1 Maneuver | - | - | 1421 | - | 160 | 883 |
| Stage 1 | - | - | - | - | 865 | - |
| Stage 2 | - | - | - | - | 277 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1421 | - | 137 | 883 |
| Mov Cap-2 Maneuver | - | - | - | - | 223 | - |
| Stage 1 | - | - | - | - | 865 | - |
| Stage 2 | - | - | - | - | 237 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.6 | 11.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 223 | 883 | - | - | 1421 | - |
| HCM Lane V/C Ratio | 0.071 | 0.119 | - | - | 0.144 | - |
| HCM Control Delay (s) | 22.4 | 9.6 | - | - | 8 | - |
| HCM Lane LOS | C | A | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.2 | 0.4 | - | - | 0.5 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Future Volume (vph) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 10.8 | 46.4 | 46.4 | 35.6 | 35.6 | | 33.6 | 33.6 | | 33.6 | 33.6 | |
| Total Split (%) | 13.5% | 58.0% | 58.0% | 44.5% | 44.5% | | 42.0% | 42.0% | | 42.0% | 42.0% | |
| Maximum Green (s) | 5.3 | 40.9 | 40.9 | 30.1 | 30.1 | | 28.1 | 28.1 | | 28.1 | 28.1 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 80 | |
| Actuated Cycle Length: 51.9 | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| Future Volume (veh/h) | 50 | 435 | 20 | 5 | 1095 | 110 | 5 | 2 | 1 | 70 | 1 | 135 |
| 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 | 1856 | 1856 | 1856 | 1900 | 1900 | 1900 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 53 | 458 | 21 | 5 | 1153 | 116 | 5 | 2 | 1 | 74 | 1 | 142 |
| 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 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 |
| Cap, veh/h | 92 | 2218 | 989 | 579 | 1525 | 153 | 162 | 55 | 13 | 363 | 1 | 206 |
| Arrive On Green | 0.05 | 0.64 | 0.64 | 0.47 | 0.47 | 0.47 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Sat Flow, veh/h | 1739 | 3469 | 1547 | 908 | 3235 | 325 | 303 | 419 | 103 | 1414 | 11 | 1576 |
| Grp Volume(v), veh/h | 53 | 458 | 21 | 5 | 627 | 642 | 8 | 0 | 0 | 74 | 0 | 143 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1547 | 908 | 1763 | 1797 | 826 | 0 | 0 | 1414 | 0 | 1587 |
| Q Serve(g_s), s | 1.4 | 2.6 | 0.2 | 0.1 | 14.0 | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 |
| Cycle Q Clear(g_c), s | 1.4 | 2.6 | 0.2 | 0.1 | 14.0 | 14.0 | 4.1 | 0.0 | 0.0 | 1.9 | 0.0 | 4.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.18 | 0.62 | | 0.12 | 1.00 | | 0.99 |
| Lane Grp Cap(c), veh/h | 92 | 2218 | 989 | 579 | 831 | 847 | 230 | 0 | 0 | 363 | 0 | 207 |
| V/C Ratio(X) | 0.58 | 0.21 | 0.02 | 0.01 | 0.76 | 0.76 | 0.03 | 0.00 | 0.00 | 0.20 | 0.00 | 0.69 |
| Avail Cap(c_a), veh/h | 193 | 2968 | 1324 | 722 | 1110 | 1131 | 880 | 0 | 0 | 1009 | 0 | 933 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.1 | 3.6 | 3.2 | 6.7 | 10.4 | 10.4 | 18.2 | 0.0 | 0.0 | 18.9 | 0.0 | 19.9 |
| Incr Delay (d2), s/veh | 2.1 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 0.3 | 0.0 | 0.0 | 3.6 | 3.7 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 | 1.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 24.2 | 3.6 | 3.2 | 6.7 | 12.5 | 12.5 | 18.3 | 0.0 | 0.0 | 19.0 | 0.0 | 21.4 |
| LnGrp LOS | C | A | A | A | B | B | B | A | A | B | A | C |
| Approach Vol, veh/h | | 532 | | | 1274 | | | 8 | | | 217 | |
| Approach Delay, s/veh | | 5.7 | | | 12.5 | | | 18.3 | | | 20.6 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.0 | 28.0 | | 11.8 | | 36.1 | | 11.8 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 5.3 | 30.1 | | 28.1 | | 40.9 | | 28.1 | | | | |
| Max Q Clear Time (g_c+I1), s | 3.4 | 16.0 | | 6.1 | | 4.6 | | 6.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 6.5 | | 0.0 | | 2.9 | | 0.5 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 11.6 | |
| HCM 6th LOS | | B | |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 150 | 100 | 385 | 5 | 5 | 1110 | 35 |
| Future Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 150 | 100 | 385 | 5 | 5 | 1110 | 35 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 |
| Mvmt Flow | 1 | 1 | 1 | 5 | 1 | 158 | 105 | 405 | 5 | 5 | 1168 | 37 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1213 | 1833 | 205 | 1610 | 1817 | 603 | 1205 | 0 | 0 | 410 | 0 | 0 |
| Stage 1 | 618 | 618 | - | 1197 | 1197 | - | - | - | - | - | - | - |
| Stage 2 | 595 | 1215 | - | 413 | 620 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.5 | 6.5 | 6.9 | 7.6 | 6.6 | 7 | 4.2 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.5 | 5.5 | - | 6.6 | 5.6 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.5 | 5.5 | - | 6.6 | 5.6 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.55 | 4.05 | 3.35 | 2.25 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 140 | 77 | 808 | 68 | 75 | 435 | 558 | - | - | 1138 | - | - |
| Stage 1 | 448 | 484 | - | 192 | 251 | - | - | - | - | - | - | - |
| Stage 2 | 463 | 256 | - | 579 | 471 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 75 | 62 | 808 | 57 | 60 | 435 | 558 | - | - | 1138 | - | - |
| Mov Cap-2 Maneuver | 75 | 62 | - | 57 | 60 | - | - | - | - | - | - | - |
| Stage 1 | 364 | 393 | - | 156 | 248 | - | - | - | - | - | - | - |
| Stage 2 | 290 | 253 | - | 468 | 382 | - | - | - | - | - | - | - |

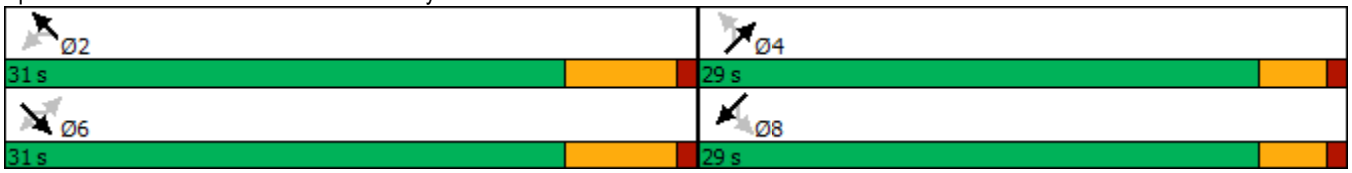
| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 43 | 20.1 | 2.6 | 0.1 |
| HCM LOS | E | C | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1138 | - | - | 98 | 57 | 435 | 558 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.032 | 0.111 | 0.363 | 0.189 | - | - |
| HCM Control Delay (s) | 8.2 | 0.1 | - | 43 | 75.9 | 17.9 | 12.9 | - | - |
| HCM Lane LOS | A | A | - | E | F | C | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.4 | 1.6 | 0.7 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (vph) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 487 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 6.6 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Total Split (%) | 51.7% | 51.7% | 51.7% | 51.7% | 51.7% | | 48.3% | 48.3% | | 48.3% | 48.3% | |
| Maximum Green (s) | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 60 | |
| Actuated Cycle Length: 45.5 | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (veh/h) | 1 | 190 | 175 | 45 | 845 | 1 | 305 | 1 | 5 | 1 | 1 | 1 |
| 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 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 200 | 184 | 47 | 889 | 1 | 321 | 1 | 5 | 1 | 1 | 1 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 0 | 0 |
| Cap, veh/h | 354 | 1416 | 631 | 592 | 1474 | 2 | 625 | 77 | 383 | 248 | 224 | 162 |
| Arrive On Green | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| Sat Flow, veh/h | 620 | 3526 | 1572 | 1007 | 3671 | 4 | 1393 | 267 | 1334 | 343 | 781 | 562 |
| Grp Volume(v), veh/h | 1 | 200 | 184 | 47 | 434 | 456 | 321 | 0 | 6 | 3 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 620 | 1763 | 1572 | 1007 | 1791 | 1884 | 1393 | 0 | 1601 | 1687 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 1.2 | 2.5 | 1.0 | 6.1 | 6.1 | 6.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 6.2 | 1.2 | 2.5 | 2.2 | 6.1 | 6.1 | 6.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.83 | 0.33 | | 0.33 |
| Lane Grp Cap(c), veh/h | 354 | 1416 | 631 | 592 | 719 | 757 | 625 | 0 | 460 | 634 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.14 | 0.29 | 0.08 | 0.60 | 0.60 | 0.51 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 587 | 2742 | 1223 | 971 | 1393 | 1465 | 1307 | 0 | 1245 | 1431 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 10.0 | 6.1 | 6.5 | 6.8 | 7.6 | 7.6 | 10.6 | 0.0 | 8.2 | 8.2 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.3 | 0.1 | 0.8 | 0.8 | 0.7 | 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 | 0.2 | 0.4 | 0.1 | 1.1 | 1.1 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 10.0 | 6.1 | 6.8 | 6.8 | 8.4 | 8.4 | 11.3 | 0.0 | 8.2 | 8.2 | 0.0 | 0.0 |
| LnGrp LOS | B | A | A | A | A | A | B | A | A | A | A | A |
| Approach Vol, veh/h | | 385 | | | 937 | | | 327 | | | 3 | |
| Approach Delay, s/veh | | 6.5 | | | 8.3 | | | 11.2 | | | 8.2 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 18.9 | | 13.2 | | 18.9 | | 13.2 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 25.0 | | 25.0 | | 25.0 | | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 8.1 | | 8.8 | | 8.2 | | 2.0 | | | | |
| Green Ext Time (p_c), s | | 4.8 | | 0.9 | | 1.5 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 8.5 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 145 | 10 | 195 | 760 | 15 | 100 |
| Future Vol, veh/h | 145 | 10 | 195 | 760 | 15 | 100 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 4 | 4 | 1 | 1 | 6 | 6 |
| Mvmt Flow | 153 | 11 | 205 | 800 | 16 | 105 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 164 | 0 | 1363 | 153 |
| Stage 1 | - | - | - | - | 153 | - |
| Stage 2 | - | - | - | - | 1210 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.46 | 6.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.46 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.46 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.554 | 3.354 |
| Pot Cap-1 Maneuver | - | - | 1421 | - | 160 | 883 |
| Stage 1 | - | - | - | - | 865 | - |
| Stage 2 | - | - | - | - | 277 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1421 | - | 137 | 883 |
| Mov Cap-2 Maneuver | - | - | - | - | 223 | - |
| Stage 1 | - | - | - | - | 865 | - |
| Stage 2 | - | - | - | - | 237 | - |

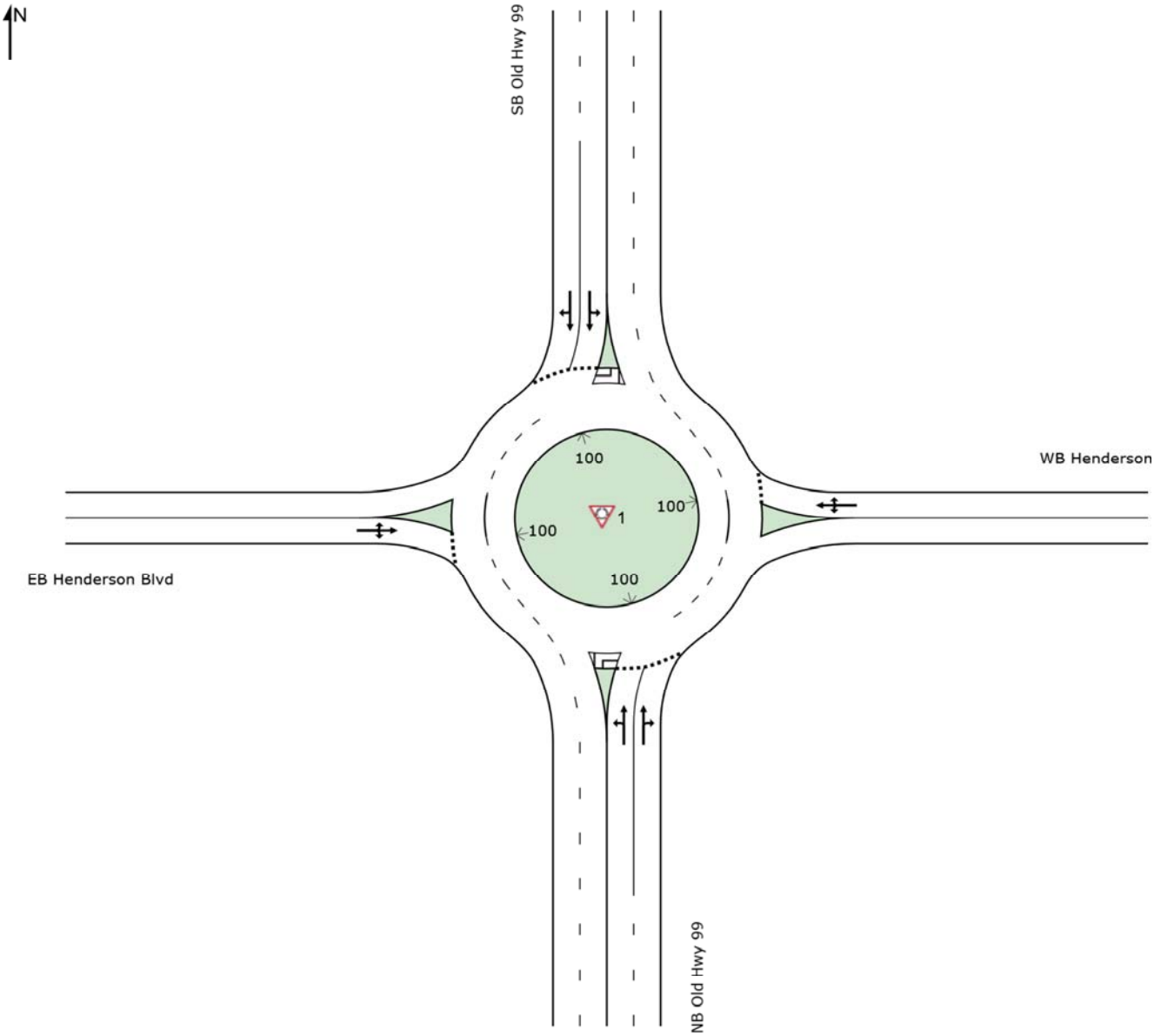
| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.6 | 11.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 223 | 883 | - | - | 1421 | - |
| HCM Lane V/C Ratio | 0.071 | 0.119 | - | - | 0.144 | - |
| HCM Control Delay (s) | 22.4 | 9.6 | - | - | 8 | - |
| HCM Lane LOS | C | A | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.2 | 0.4 | - | - | 0.5 | - |

# SITE LAYOUT

## Site: 1 [AM 2025 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: SCJ ALLIANCE | Created: Monday, April 13, 2020 9:24:21 AM
Project: N:\Projects\0625 City of Tumwater\0625.29 Tumwater Old Hwy 99 and 79th Ave Corridor Study\Phase 04 - Alternatives Analysis\Operations\Old Hwy 99-Henderson.sip8

# MOVEMENT SUMMARY

## Site: 1 [AM 2025 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2025
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

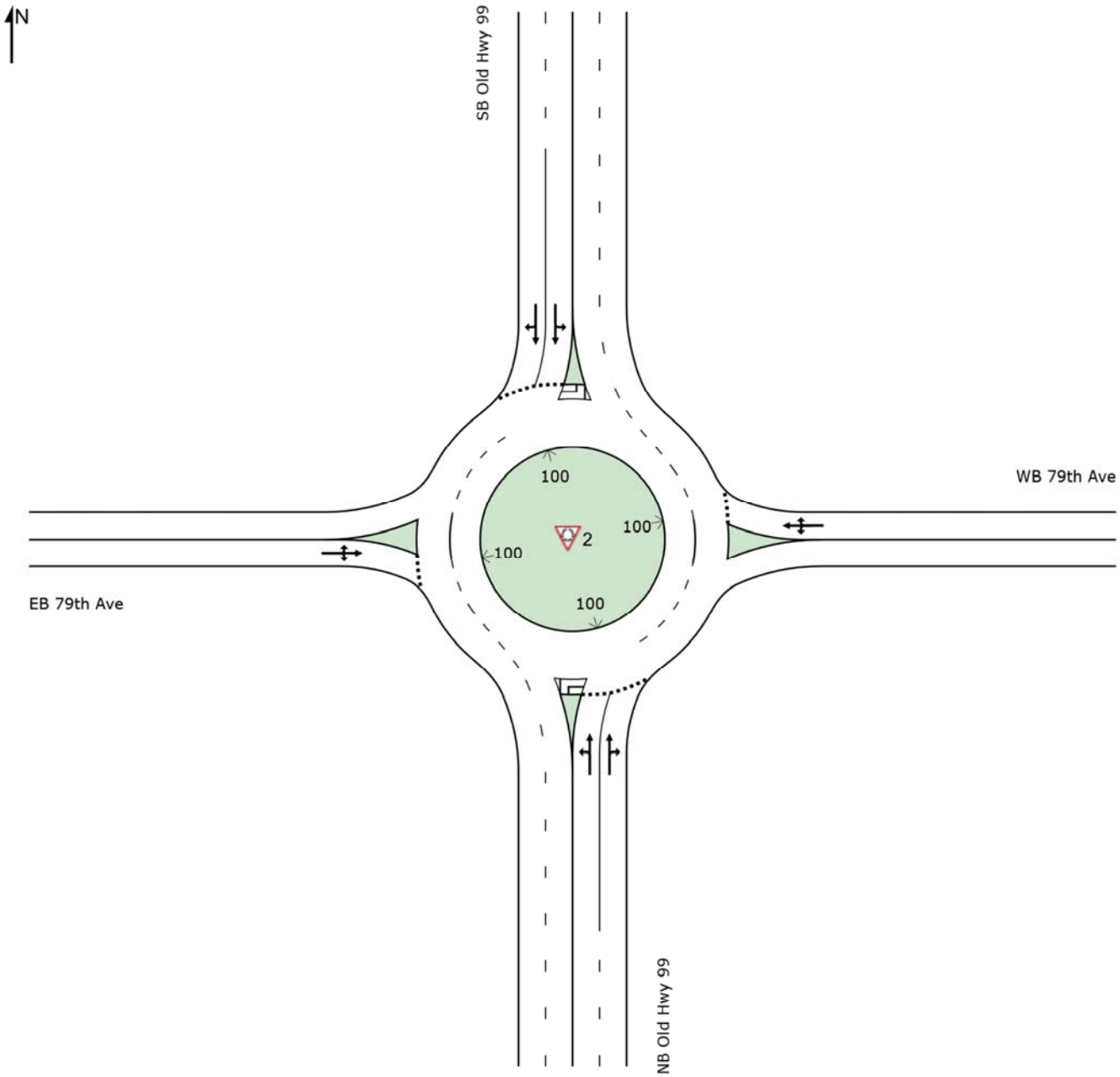
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.432 | 10.2 | LOS B | 2.8 | 72.5 | 0.25 | 0.40 | 0.25 | 37.2 |
| 8 | T1 | 1095 | 3.0 | 0.432 | 4.3 | LOS A | 2.8 | 72.6 | 0.24 | 0.40 | 0.24 | 37.2 |
| 18 | R2 | 110 | 3.0 | 0.432 | 4.4 | LOS A | 2.8 | 72.6 | 0.24 | 0.40 | 0.24 | 35.9 |
| Approach | | 1210 | 3.0 | 0.432 | 4.3 | LOS A | 2.8 | 72.6 | 0.24 | 0.40 | 0.24 | 37.1 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 70 | 2.0 | 0.299 | 13.3 | LOS B | 1.1 | 28.9 | 0.61 | 0.82 | 0.62 | 35.2 |
| 6 | T1 | 5 | 2.0 | 0.299 | 7.4 | LOS A | 1.1 | 28.9 | 0.61 | 0.82 | 0.62 | 35.0 |
| 16 | R2 | 135 | 2.0 | 0.299 | 7.3 | LOS A | 1.1 | 28.9 | 0.61 | 0.82 | 0.62 | 34.0 |
| Approach | | 210 | 2.0 | 0.299 | 9.3 | LOS A | 1.1 | 28.9 | 0.61 | 0.82 | 0.62 | 34.4 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 50 | 5.0 | 0.188 | 10.2 | LOS B | 1.0 | 26.7 | 0.25 | 0.46 | 0.25 | 36.6 |
| 4 | T1 | 435 | 5.0 | 0.188 | 4.3 | LOS A | 1.0 | 27.1 | 0.24 | 0.42 | 0.24 | 36.9 |
| 14 | R2 | 20 | 5.0 | 0.188 | 4.4 | LOS A | 1.0 | 27.1 | 0.24 | 0.40 | 0.24 | 35.9 |
| Approach | | 505 | 5.0 | 0.188 | 4.9 | LOS A | 1.0 | 27.1 | 0.24 | 0.43 | 0.24 | 36.9 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.017 | 11.3 | LOS B | 0.1 | 1.3 | 0.40 | 0.61 | 0.40 | 36.1 |
| 2 | T1 | 5 | 0.0 | 0.017 | 5.4 | LOS A | 0.1 | 1.3 | 0.40 | 0.61 | 0.40 | 35.9 |
| 12 | R2 | 5 | 0.0 | 0.017 | 5.3 | LOS A | 0.1 | 1.3 | 0.40 | 0.61 | 0.40 | 34.9 |
| Approach | | 15 | 0.0 | 0.017 | 7.3 | LOS A | 0.1 | 1.3 | 0.40 | 0.61 | 0.40 | 35.6 |
| All Vehicles | | 1940 | 3.4 | 0.432 | 5.0 | LOS A | 2.8 | 72.6 | 0.28 | 0.45 | 0.28 | 36.7 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [AM 2040 Old Hwy 99-79th Ave - Land Use 2]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout



# MOVEMENT SUMMARY

## Site: 2 [AM 2025 Old Hwy 99-79th Ave - Baseline]

Projected 2025
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

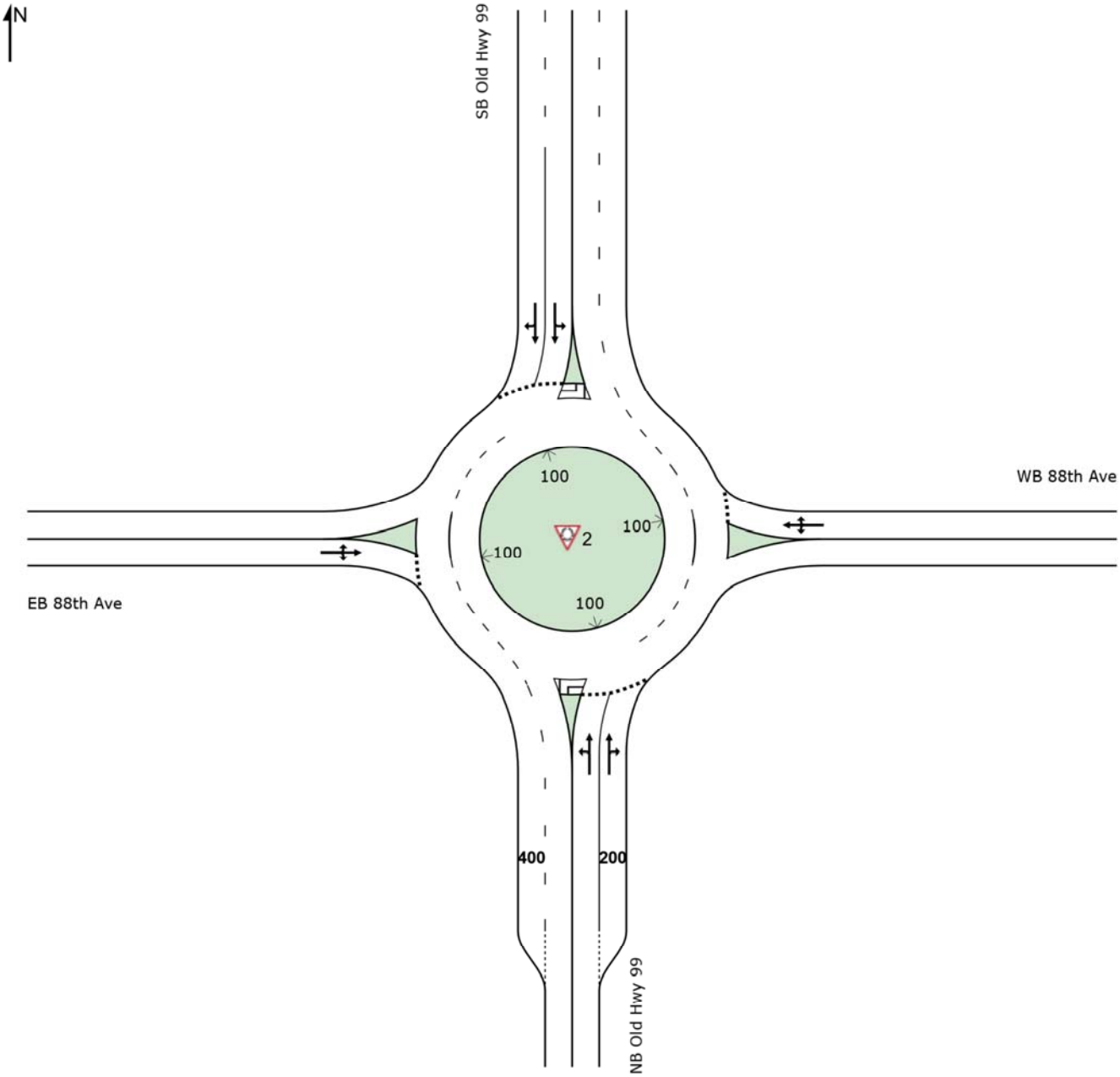
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.386 | 10.4 | LOS B | 2.3 | 57.6 | 0.30 | 0.43 | 0.30 | 37.0 |
| 8 | T1 | 1010 | 3.0 | 0.386 | 4.5 | LOS A | 2.3 | 57.8 | 0.29 | 0.42 | 0.29 | 37.0 |
| 18 | R2 | 35 | 3.0 | 0.386 | 4.6 | LOS A | 2.3 | 57.8 | 0.29 | 0.42 | 0.29 | 35.7 |
| Approach | | 1050 | 3.0 | 0.386 | 4.5 | LOS A | 2.3 | 57.8 | 0.29 | 0.42 | 0.29 | 37.0 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 5 | 5.0 | 0.227 | 12.9 | LOS B | 0.8 | 21.1 | 0.58 | 0.77 | 0.58 | 36.2 |
| 6 | T1 | 1 | 5.0 | 0.227 | 7.1 | LOS A | 0.8 | 21.1 | 0.58 | 0.77 | 0.58 | 36.1 |
| 16 | R2 | 150 | 5.0 | 0.227 | 7.0 | LOS A | 0.8 | 21.1 | 0.58 | 0.77 | 0.58 | 35.0 |
| Approach | | 156 | 5.0 | 0.227 | 7.2 | LOS A | 0.8 | 21.1 | 0.58 | 0.77 | 0.58 | 35.1 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 100 | 5.0 | 0.172 | 9.9 | LOS A | 0.9 | 22.5 | 0.07 | 0.51 | 0.07 | 36.5 |
| 4 | T1 | 385 | 5.0 | 0.172 | 4.0 | LOS A | 0.9 | 22.6 | 0.07 | 0.42 | 0.07 | 37.4 |
| 14 | R2 | 5 | 5.0 | 0.172 | 4.2 | LOS A | 0.9 | 22.6 | 0.07 | 0.37 | 0.07 | 36.5 |
| Approach | | 490 | 5.0 | 0.172 | 5.2 | LOS A | 0.9 | 22.6 | 0.07 | 0.44 | 0.07 | 37.2 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 1 | 0.0 | 0.003 | 11.1 | LOS B | 0.0 | 0.2 | 0.36 | 0.55 | 0.36 | 36.2 |
| 2 | T1 | 1 | 0.0 | 0.003 | 5.2 | LOS A | 0.0 | 0.2 | 0.36 | 0.55 | 0.36 | 36.0 |
| 12 | R2 | 1 | 0.0 | 0.003 | 5.1 | LOS A | 0.0 | 0.2 | 0.36 | 0.55 | 0.36 | 35.0 |
| Approach | | 3 | 0.0 | 0.003 | 7.1 | LOS A | 0.0 | 0.2 | 0.36 | 0.55 | 0.36 | 35.8 |
| All Vehicles | | 1699 | 3.8 | 0.386 | 5.0 | LOS A | 2.3 | 57.8 | 0.25 | 0.46 | 0.25 | 36.9 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [PM 2040 Old Hwy 99-88th Ave - Land Use 2]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**

# MOVEMENT SUMMARY

## Site: 2 [AM 2025 Old Hwy 99-88th Ave - Baseline]

Projected 2025
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

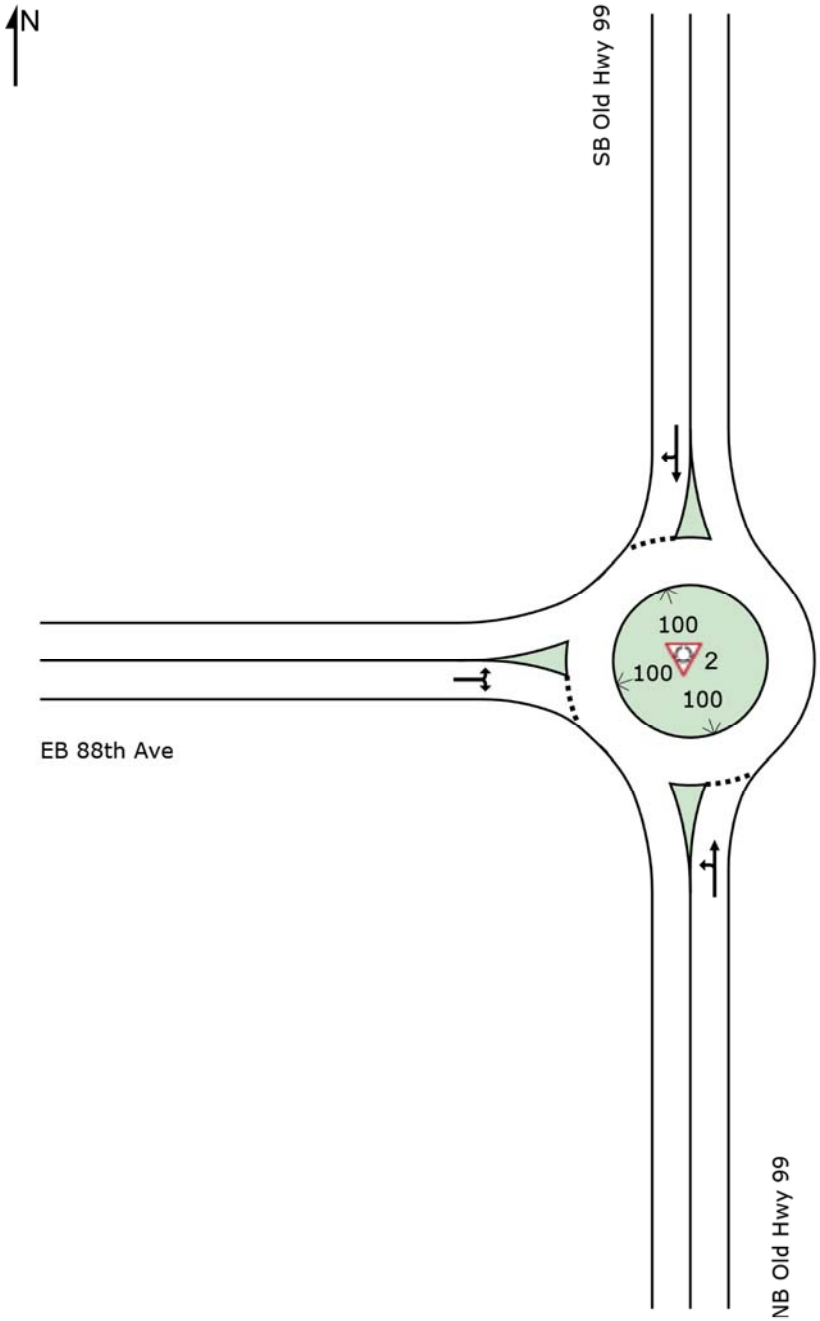
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 45 | 1.0 | 0.376 | 11.5 | LOS B | 2.3 | 57.6 | 0.53 | 0.57 | 0.53 | 36.0 |
| 8 | T1 | 845 | 1.0 | 0.376 | 5.5 | LOS A | 2.4 | 59.5 | 0.52 | 0.54 | 0.52 | 36.1 |
| 18 | R2 | 1 | 1.0 | 0.376 | 5.5 | LOS A | 2.4 | 59.5 | 0.52 | 0.51 | 0.52 | 35.0 |
| Approach | | 891 | 1.0 | 0.376 | 5.8 | LOS A | 2.4 | 59.5 | 0.52 | 0.54 | 0.52 | 36.1 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 1 | 0.0 | 0.005 | 12.8 | LOS B | 0.0 | 0.4 | 0.60 | 0.65 | 0.60 | 35.4 |
| 6 | T1 | 1 | 0.0 | 0.005 | 6.9 | LOS A | 0.0 | 0.4 | 0.60 | 0.65 | 0.60 | 35.2 |
| 16 | R2 | 1 | 0.0 | 0.005 | 6.9 | LOS A | 0.0 | 0.4 | 0.60 | 0.65 | 0.60 | 34.2 |
| Approach | | 3 | 0.0 | 0.005 | 8.9 | LOS A | 0.0 | 0.4 | 0.60 | 0.65 | 0.60 | 34.9 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 1 | 3.0 | 0.130 | 10.0 | LOS A | 0.7 | 17.3 | 0.16 | 0.37 | 0.16 | 37.6 |
| 4 | T1 | 190 | 3.0 | 0.130 | 4.1 | LOS A | 0.7 | 17.3 | 0.16 | 0.37 | 0.16 | 37.5 |
| 14 | R2 | 175 | 3.0 | 0.130 | 4.3 | LOS A | 0.7 | 17.0 | 0.17 | 0.46 | 0.17 | 36.2 |
| Approach | | 366 | 3.0 | 0.130 | 4.2 | LOS A | 0.7 | 17.3 | 0.17 | 0.41 | 0.17 | 36.9 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 305 | 4.0 | 0.309 | 10.8 | LOS B | 1.3 | 34.7 | 0.34 | 0.67 | 0.34 | 34.2 |
| 2 | T1 | 1 | 4.0 | 0.309 | 5.0 | LOS A | 1.3 | 34.7 | 0.34 | 0.67 | 0.34 | 34.1 |
| 12 | R2 | 5 | 4.0 | 0.309 | 4.9 | LOS A | 1.3 | 34.7 | 0.34 | 0.67 | 0.34 | 33.2 |
| Approach | | 311 | 4.0 | 0.309 | 10.7 | LOS B | 1.3 | 34.7 | 0.34 | 0.67 | 0.34 | 34.2 |
| All Vehicles | | 1571 | 2.1 | 0.376 | 6.4 | LOS A | 2.4 | 59.5 | 0.40 | 0.54 | 0.40 | 35.9 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [PM 2025 Old Hwy 99-93rd Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout



# MOVEMENT SUMMARY

## Site: 2 [AM 2025 Old Hwy 99-93rd Ave - Baseline]

Projected 2025
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 205 | 1.0 | 0.770 | 10.0 | LOS B | 11.5 | 290.0 | 0.27 | 0.41 | 0.27 | 36.7 |
| 8 | T1 | 800 | 1.0 | 0.770 | 4.1 | LOS A | 11.5 | 290.0 | 0.27 | 0.41 | 0.27 | 36.6 |
| Approach | | 1005 | 1.0 | 0.770 | 5.3 | LOS A | 11.5 | 290.0 | 0.27 | 0.41 | 0.27 | 36.6 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 153 | 4.0 | 0.150 | 4.8 | LOS A | 0.7 | 18.4 | 0.36 | 0.47 | 0.36 | 36.8 |
| 14 | R2 | 11 | 4.0 | 0.150 | 4.9 | LOS A | 0.7 | 18.4 | 0.36 | 0.47 | 0.36 | 35.7 |
| Approach | | 163 | 4.0 | 0.150 | 4.8 | LOS A | 0.7 | 18.4 | 0.36 | 0.47 | 0.36 | 36.7 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 16 | 6.0 | 0.110 | 10.5 | LOS B | 0.5 | 13.5 | 0.31 | 0.52 | 0.31 | 36.8 |
| 12 | R2 | 105 | 6.0 | 0.110 | 4.6 | LOS A | 0.5 | 13.5 | 0.31 | 0.52 | 0.31 | 35.6 |
| Approach | | 121 | 6.0 | 0.110 | 5.4 | LOS A | 0.5 | 13.5 | 0.31 | 0.52 | 0.31 | 35.7 |
| All Vehicles | | 1289 | 1.8 | 0.770 | 5.2 | LOS A | 11.5 | 290.0 | 0.29 | 0.43 | 0.29 | 36.6 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Future Volume (vph) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 10.5 | 116.5 | 116.5 | 106.0 | 106.0 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 7.0% | 77.7% | 77.7% | 70.7% | 70.7% | | 22.3% | 22.3% | | 22.3% | 22.3% | |
| Maximum Green (s) | 5.0 | 111.0 | 111.0 | 100.5 | 100.5 | | 28.0 | 28.0 | | 28.0 | 28.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 150 | |
| Actuated Cycle Length: 138.4 | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Future Volume (veh/h) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| 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 | 1856 | 1856 | 1856 | 1900 | 1900 | 1900 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 |
| Cap, veh/h | 61 | 1415 | 1199 | 602 | 1165 | 116 | 56 | 20 | 5 | 228 | 1 | 234 |
| Arrive On Green | 0.03 | 0.78 | 0.78 | 0.70 | 0.70 | 0.70 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1739 | 1826 | 1547 | 820 | 1660 | 166 | 99 | 132 | 33 | 1414 | 8 | 1579 |
| Grp Volume(v), veh/h | 55 | 570 | 20 | 5 | 0 | 1980 | 8 | 0 | 0 | 115 | 0 | 211 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1826 | 1547 | 820 | 0 | 1826 | 264 | 0 | 0 | 1414 | 0 | 1586 |
| Q Serve(g_s), s | 4.5 | 14.6 | 0.4 | 0.3 | 0.0 | 100.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 18.7 |
| Cycle Q Clear(g_c), s | 4.5 | 14.6 | 0.4 | 4.4 | 0.0 | 100.5 | 18.8 | 0.0 | 0.0 | 13.2 | 0.0 | 18.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.09 | 0.62 | | 0.12 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 61 | 1415 | 1199 | 602 | 0 | 1281 | 80 | 0 | 0 | 228 | 0 | 235 |
| V/C Ratio(X) | 0.91 | 0.40 | 0.02 | 0.01 | 0.00 | 1.55 | 0.10 | 0.00 | 0.00 | 0.50 | 0.00 | 0.90 |
| Avail Cap(c_a), veh/h | 61 | 1415 | 1199 | 602 | 0 | 1281 | 145 | 0 | 0 | 295 | 0 | 310 |
| 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 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 68.9 | 5.3 | 3.7 | 7.7 | 0.0 | 21.3 | 53.3 | 0.0 | 0.0 | 57.6 | 0.0 | 59.9 |
| Incr Delay (d2), s/veh | 81.0 | 0.2 | 0.0 | 0.0 | 0.0 | 249.3 | 0.2 | 0.0 | 0.0 | 0.6 | 0.0 | 19.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.3 | 4.3 | 0.1 | 0.0 | 0.0 | 123.5 | 0.3 | 0.0 | 0.0 | 4.0 | 0.0 | 8.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 149.8 | 5.4 | 3.7 | 7.7 | 0.0 | 270.6 | 53.5 | 0.0 | 0.0 | 58.2 | 0.0 | 79.5 |
| LnGrp LOS | F | A | A | A | A | F | D | A | A | E | A | E |
| Approach Vol, veh/h | | 645 | | | 1985 | | | 8 | | | 326 | |
| Approach Delay, s/veh | | 17.7 | | | 270.0 | | | 53.5 | | | 72.0 | |
| Approach LOS | | B | | | F | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.5 | 106.0 | | 26.7 | | 116.5 | | 26.7 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 5.0 | 100.5 | | 28.0 | | 111.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 6.5 | 102.5 | | 20.8 | | 16.6 | | 20.7 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 0.0 | | 3.7 | | 0.5 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 192.7 | |
| HCM 6th LOS | | F | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 36 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |
| Future Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 |
| Mvmt Flow | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 2826 | 2768 | 613 | 2742 | 2743 | 1888 | 1915 | 0 | 0 | 615 | 0 | 0 |
| Stage 1 | 833 | 833 | - | 1908 | 1908 | - | - | - | - | - | - | - |
| Stage 2 | 1993 | 1935 | - | 834 | 835 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 11 | 20 | 496 | 13 | 20 | ~ 86 | 302 | - | - | 960 | - | - |
| Stage 1 | 366 | 386 | - | 86 | 114 | - | - | - | - | - | - | - |
| Stage 2 | 80 | 114 | - | 358 | 379 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | - | 13 | 496 | 9 | 13 | ~ 86 | 302 | - | - | 960 | - | - |
| Mov Cap-2 Maneuver | - | 13 | - | 9 | 13 | - | - | - | - | - | - | - |
| Stage 1 | 233 | 245 | - | 55 | 114 | - | - | - | - | - | - | - |
| Stage 2 | - | 114 | - | 226 | 241 | - | - | - | - | - | - | - |

| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | | $ 563.4 | 3.6 | 0 |
| HCM LOS | - | F | | |

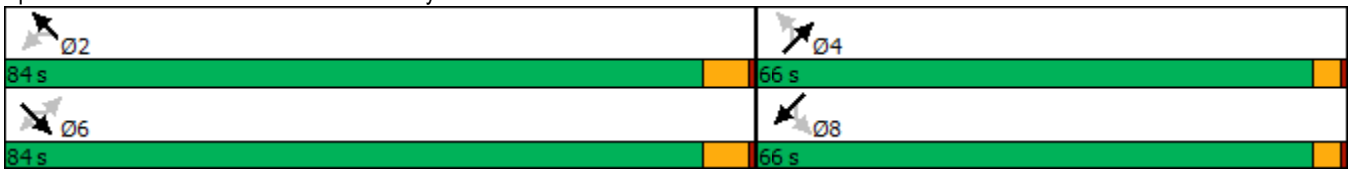
| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 960 | - | - | - | 9 | 86 | 302 | - | - |
| HCM Lane V/C Ratio | 0.01 | - | - | - | 0.667 | 1.977 | 0.364 | - | - |
| HCM Control Delay (s) | 8.8 | 0 | - | - | $ 684.4 | $ 559.1 | 23.6 | - | - |
| HCM Lane LOS | A | A | - | - | F | F | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 1.3 | 14.8 | 1.6 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (vph) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 84.0 | 84.0 | 84.0 | 84.0 | 84.0 | | 66.0 | 66.0 | | 66.0 | 66.0 | |
| Total Split (%) | 56.0% | 56.0% | 56.0% | 56.0% | 56.0% | | 44.0% | 44.0% | | 44.0% | 44.0% | |
| Maximum Green (s) | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 | | 62.0 | 62.0 | | 62.0 | 62.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (veh/h) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| 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 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 0 | 0 |
| Cap, veh/h | 48 | 965 | 818 | 490 | 979 | 1 | 624 | 110 | 551 | 242 | 241 | 225 |
| Arrive On Green | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| Sat Flow, veh/h | 453 | 1856 | 1572 | 970 | 1883 | 2 | 1393 | 267 | 1334 | 507 | 584 | 545 |
| Grp Volume(v), veh/h | 1 | 220 | 205 | 50 | 0 | 1221 | 715 | 0 | 6 | 3 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 453 | 1856 | 1572 | 970 | 0 | 1885 | 1393 | 0 | 1601 | 1636 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 9.7 | 10.8 | 4.4 | 0.0 | 78.0 | 61.9 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 78.0 | 9.7 | 10.8 | 14.1 | 0.0 | 78.0 | 62.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.83 | 0.33 | | 0.33 |
| Lane Grp Cap(c), veh/h | 48 | 965 | 818 | 490 | 0 | 980 | 624 | 0 | 662 | 708 | 0 | 0 |
| V/C Ratio(X) | 0.02 | 0.23 | 0.25 | 0.10 | 0.00 | 1.25 | 1.15 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 48 | 965 | 818 | 490 | 0 | 980 | 624 | 0 | 662 | 708 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 75.0 | 19.6 | 19.9 | 23.5 | 0.0 | 36.0 | 46.4 | 0.0 | 25.9 | 25.9 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.1 | 0.2 | 0.1 | 0.0 | 119.2 | 83.5 | 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 | 4.1 | 3.9 | 1.0 | 0.0 | 65.5 | 38.7 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 75.2 | 19.7 | 20.0 | 23.5 | 0.0 | 155.2 | 129.9 | 0.0 | 25.9 | 25.9 | 0.0 | 0.0 |
| LnGrp LOS | E | B | C | C | A | F | F | A | C | C | A | A |
| Approach Vol, veh/h | | 426 | | | 1271 | | | 721 | | | 3 | |
| Approach Delay, s/veh | | 20.0 | | | 150.0 | | | 129.0 | | | 25.9 | |
| Approach LOS | | C | | | F | | | F | | | C | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 84.0 | | 66.0 | | 84.0 | | 66.0 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 78.0 | | 62.0 | | 78.0 | | 62.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 80.0 | | 64.0 | | 80.0 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 120.7 | | | | | | | | | |
| HCM 6th LOS | | | F | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 180 | 10 | 225 | 1135 | 20 | 155 |
| Future Vol, veh/h | 180 | 10 | 225 | 1135 | 20 | 155 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 4 | 4 | 1 | 1 | 6 | 6 |
| Mvmt Flow | 180 | 10 | 225 | 1135 | 20 | 155 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 190 | 0 | 1765 | 180 |
| Stage 1 | - | - | - | - | 180 | - |
| Stage 2 | - | - | - | - | 1585 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.46 | 6.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.46 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.46 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.554 | 3.354 |
| Pot Cap-1 Maneuver | - | - | 1390 | - | 90 | 853 |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 181 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1390 | - | 75 | 853 |
| Mov Cap-2 Maneuver | - | - | - | - | 144 | - |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 152 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.3 | 12.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 144 | 853 | - | - | 1390 | - |
| HCM Lane V/C Ratio | 0.139 | 0.182 | - | - | 0.162 | - |
| HCM Control Delay (s) | 34 | 10.2 | - | - | 8.1 | - |
| HCM Lane LOS | D | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.5 | 0.7 | - | - | 0.6 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Future Volume (vph) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 11.0 | 76.4 | 76.4 | 65.4 | 65.4 | | 33.6 | 33.6 | | 33.6 | 33.6 | |
| Total Split (%) | 10.0% | 69.5% | 69.5% | 59.5% | 59.5% | | 30.5% | 30.5% | | 30.5% | 30.5% | |
| Maximum Green (s) | 5.5 | 70.9 | 70.9 | 59.9 | 59.9 | | 28.1 | 28.1 | | 28.1 | 28.1 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 110 | |
| Actuated Cycle Length: 91.5 | |
| Natural Cycle: 110 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Future Volume (veh/h) | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| 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 | 1856 | 1856 | 1856 | 1900 | 1900 | 1900 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 55 | 570 | 20 | 5 | 1800 | 180 | 5 | 2 | 1 | 115 | 1 | 210 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 |
| Cap, veh/h | 71 | 2504 | 1117 | 588 | 2013 | 198 | 88 | 31 | 8 | 276 | 1 | 250 |
| Arrive On Green | 0.04 | 0.72 | 0.72 | 0.62 | 0.62 | 0.62 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Sat Flow, veh/h | 1739 | 3469 | 1547 | 820 | 3242 | 319 | 156 | 197 | 50 | 1414 | 8 | 1579 |
| Grp Volume(v), veh/h | 55 | 570 | 20 | 5 | 965 | 1015 | 8 | 0 | 0 | 115 | 0 | 211 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1547 | 820 | 1763 | 1798 | 403 | 0 | 0 | 1414 | 0 | 1586 |
| Q Serve(g_s), s | 2.9 | 5.0 | 0.3 | 0.2 | 42.0 | 45.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 |
| Cycle Q Clear(g_c), s | 2.9 | 5.0 | 0.3 | 0.2 | 42.0 | 45.1 | 11.9 | 0.0 | 0.0 | 8.1 | 0.0 | 11.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.18 | 0.62 | | 0.12 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 71 | 2504 | 1117 | 588 | 1094 | 1116 | 127 | 0 | 0 | 276 | 0 | 251 |
| V/C Ratio(X) | 0.77 | 0.23 | 0.02 | 0.01 | 0.88 | 0.91 | 0.06 | 0.00 | 0.00 | 0.42 | 0.00 | 0.84 |
| Avail Cap(c_a), veh/h | 104 | 2683 | 1197 | 614 | 1152 | 1175 | 329 | 0 | 0 | 486 | 0 | 486 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 43.5 | 4.2 | 3.6 | 6.6 | 14.6 | 15.1 | 33.3 | 0.0 | 0.0 | 35.9 | 0.0 | 37.5 |
| Incr Delay (d2), s/veh | 10.0 | 0.0 | 0.0 | 0.0 | 7.9 | 10.2 | 0.1 | 0.0 | 0.0 | 0.4 | 0.0 | 2.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 1.1 | 0.1 | 0.0 | 14.9 | 16.9 | 0.2 | 0.0 | 0.0 | 2.4 | 0.0 | 4.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.5 | 4.3 | 3.6 | 6.6 | 22.5 | 25.3 | 33.3 | 0.0 | 0.0 | 36.3 | 0.0 | 40.4 |
| LnGrp LOS | D | A | A | A | C | C | C | A | A | D | A | D |
| Approach Vol, veh/h | | 645 | | | 1985 | | | 8 | | | 326 | |
| Approach Delay, s/veh | | 8.5 | | | 23.9 | | | 33.3 | | | 38.9 | |
| Approach LOS | | A | | | C | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.3 | 62.4 | | 20.0 | | 71.7 | | 20.0 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 5.5 | 59.9 | | 28.1 | | 70.9 | | 28.1 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.9 | 47.1 | | 13.9 | | 7.0 | | 13.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 9.8 | | 0.0 | | 3.8 | | 0.7 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 22.2 | |
| HCM 6th LOS | | C | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |
| Future Vol, veh/h | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 |
| Mvmt Flow | 1 | 1 | 1 | 5 | 1 | 170 | 110 | 610 | 5 | 10 | 1860 | 55 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1784 | 2768 | 308 | 2434 | 2743 | 958 | 1915 | 0 | 0 | 615 | 0 | 0 |
| Stage 1 | 833 | 833 | - | 1908 | 1908 | - | - | - | - | - | - | - |
| Stage 2 | 951 | 1935 | - | 526 | 835 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.5 | 6.5 | 6.9 | 7.6 | 6.6 | 7 | 4.2 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.5 | 5.5 | - | 6.6 | 5.6 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.5 | 5.5 | - | 6.6 | 5.6 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.55 | 4.05 | 3.35 | 2.25 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 53 | 20 | 694 | 16 | 19 | 252 | 294 | - | - | 954 | - | - |
| Stage 1 | 334 | 386 | - | 68 | 111 | - | - | - | - | - | - | - |
| Stage 2 | 283 | 114 | - | 496 | 374 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 12 | 13 | 694 | 11 | 12 | 252 | 294 | - | - | 954 | - | - |
| Mov Cap-2 Maneuver | 12 | 13 | - | 11 | 12 | - | - | - | - | - | - | - |
| Stage 1 | 209 | 242 | - | 43 | 111 | - | - | - | - | - | - | - |
| Stage 2 | 91 | 114 | - | 309 | 234 | - | - | - | - | - | - | - |

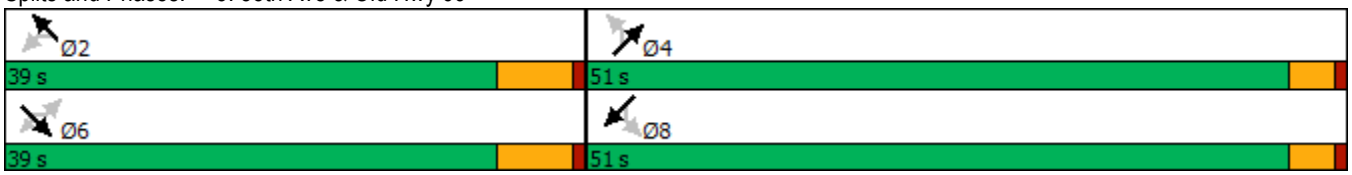
| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 227.2 | 61.1 | 3.7 | 0 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 954 | - | - | 19 | 11 | 252 | 294 | - | - |
| HCM Lane V/C Ratio | 0.01 | - | - | 0.158 | 0.545 | 0.675 | 0.374 | - | - |
| HCM Control Delay (s) | 8.8 | 0 | - | 227.2 | $ 531.3 | 44.5 | 24.4 | - | - |
| HCM Lane LOS | A | A | - | F | F | E | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.5 | 1.2 | 4.4 | 1.7 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (vph) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 250 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 501 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 6.8 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 39.0 | 39.0 | 39.0 | 39.0 | 39.0 | | 51.0 | 51.0 | | 51.0 | 51.0 | |
| Total Split (%) | 43.3% | 43.3% | 43.3% | 43.3% | 43.3% | | 56.7% | 56.7% | | 56.7% | 56.7% | |
| Maximum Green (s) | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | | 47.0 | 47.0 | | 47.0 | 47.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 89.6 | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Future Volume (veh/h) | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| 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 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 220 | 205 | 50 | 1220 | 1 | 715 | 1 | 5 | 1 | 1 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 0 | 0 |
| Cap, veh/h | 101 | 1274 | 568 | 391 | 1327 | 1 | 814 | 140 | 701 | 315 | 314 | 287 |
| Arrive On Green | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 |
| Sat Flow, veh/h | 453 | 3526 | 1572 | 970 | 3673 | 3 | 1393 | 267 | 1334 | 495 | 598 | 547 |
| Grp Volume(v), veh/h | 1 | 220 | 205 | 50 | 595 | 626 | 715 | 0 | 6 | 3 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 453 | 1763 | 1572 | 970 | 1791 | 1885 | 1393 | 0 | 1601 | 1640 | 0 | 0 |
| Q Serve(g_s), s | 0.2 | 3.8 | 8.5 | 3.3 | 28.1 | 28.1 | 44.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 28.3 | 3.8 | 8.5 | 7.0 | 28.1 | 28.1 | 44.3 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.83 | 0.33 | | 0.33 |
| Lane Grp Cap(c), veh/h | 101 | 1274 | 568 | 391 | 647 | 681 | 814 | 0 | 841 | 916 | 0 | 0 |
| V/C Ratio(X) | 0.01 | 0.17 | 0.36 | 0.13 | 0.92 | 0.92 | 0.88 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 106 | 1314 | 586 | 402 | 667 | 702 | 821 | 0 | 850 | 925 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 40.6 | 19.3 | 20.8 | 21.6 | 27.0 | 27.0 | 20.5 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.4 | 0.1 | 17.6 | 17.0 | 10.7 | 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 | 1.4 | 2.9 | 0.7 | 13.8 | 14.4 | 15.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 40.6 | 19.3 | 21.1 | 21.8 | 44.7 | 44.0 | 31.2 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 |
| LnGrp LOS | D | B | C | C | D | D | C | A | B | A | A | A |
| Approach Vol, veh/h | | 426 | | | 1271 | | | 721 | | | 3 | |
| Approach Delay, s/veh | | 20.2 | | | 43.4 | | | 31.0 | | | 10.0 | |
| Approach LOS | | C | | | D | | | C | | | A | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 38.0 | | 50.5 | | 38.0 | | 50.5 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 33.0 | | 47.0 | | 33.0 | | 47.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 30.1 | | 46.3 | | 30.3 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 1.9 | | 0.2 | | 0.5 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 35.6 | | | | | | | | | |
| HCM 6th LOS | | | D | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 180 | 10 | 225 | 1135 | 20 | 155 |
| Future Vol, veh/h | 180 | 10 | 225 | 1135 | 20 | 155 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 4 | 4 | 1 | 1 | 6 | 6 |
| Mvmt Flow | 180 | 10 | 225 | 1135 | 20 | 155 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 190 | 0 | 1765 | 180 |
| Stage 1 | - | - | - | - | 180 | - |
| Stage 2 | - | - | - | - | 1585 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.46 | 6.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.46 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.46 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.554 | 3.354 |
| Pot Cap-1 Maneuver | - | - | 1390 | - | 90 | 853 |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 181 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1390 | - | 75 | 853 |
| Mov Cap-2 Maneuver | - | - | - | - | 144 | - |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 152 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.3 | 12.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 144 | 853 | - | - | 1390 | - |
| HCM Lane V/C Ratio | 0.139 | 0.182 | - | - | 0.162 | - |
| HCM Control Delay (s) | 34 | 10.2 | - | - | 8.1 | - |
| HCM Lane LOS | D | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.5 | 0.7 | - | - | 0.6 | - |

# MOVEMENT SUMMARY

## Site: 1 [AM 2040 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.662 | 10.4 | LOS B | 6.6 | 168.2 | 0.38 | 0.41 | 0.38 | 36.7 |
| 8 | T1 | 1800 | 3.0 | 0.662 | 4.5 | LOS A | 6.6 | 168.2 | 0.36 | 0.41 | 0.36 | 36.8 |
| 18 | R2 | 180 | 3.0 | 0.662 | 4.6 | LOS A | 6.5 | 166.9 | 0.34 | 0.41 | 0.34 | 35.6 |
| Approach | | 1985 | 3.0 | 0.662 | 4.5 | LOS A | 6.6 | 168.2 | 0.36 | 0.41 | 0.36 | 36.7 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 115 | 2.0 | 0.549 | 17.4 | LOS B | 3.1 | 79.3 | 0.81 | 1.00 | 1.10 | 33.0 |
| 6 | T1 | 5 | 2.0 | 0.549 | 11.6 | LOS B | 3.1 | 79.3 | 0.81 | 1.00 | 1.10 | 32.9 |
| 16 | R2 | 210 | 2.0 | 0.549 | 11.5 | LOS B | 3.1 | 79.3 | 0.81 | 1.00 | 1.10 | 32.0 |
| Approach | | 330 | 2.0 | 0.549 | 13.6 | LOS B | 3.1 | 79.3 | 0.81 | 1.00 | 1.10 | 32.4 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 55 | 5.0 | 0.233 | 10.4 | LOS B | 1.4 | 36.3 | 0.33 | 0.48 | 0.33 | 36.4 |
| 4 | T1 | 570 | 5.0 | 0.233 | 4.4 | LOS A | 1.5 | 37.7 | 0.33 | 0.45 | 0.33 | 36.7 |
| 14 | R2 | 20 | 5.0 | 0.233 | 4.6 | LOS A | 1.5 | 37.7 | 0.32 | 0.42 | 0.32 | 35.6 |
| Approach | | 645 | 5.0 | 0.233 | 5.0 | LOS A | 1.5 | 37.7 | 0.33 | 0.45 | 0.33 | 36.6 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.016 | 11.3 | LOS B | 0.1 | 1.3 | 0.45 | 0.62 | 0.45 | 36.0 |
| 2 | T1 | 5 | 0.0 | 0.016 | 5.5 | LOS A | 0.1 | 1.3 | 0.45 | 0.62 | 0.45 | 35.8 |
| 12 | R2 | 5 | 0.0 | 0.016 | 5.4 | LOS A | 0.1 | 1.3 | 0.45 | 0.62 | 0.45 | 34.8 |
| Approach | | 15 | 0.0 | 0.016 | 7.4 | LOS A | 0.1 | 1.3 | 0.45 | 0.62 | 0.45 | 35.5 |
| All Vehicles | | 2975 | 3.3 | 0.662 | 5.6 | LOS A | 6.6 | 168.2 | 0.40 | 0.49 | 0.44 | 36.1 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-79th Ave - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 10 | 3.0 | 0.660 | 10.8 | LOS B | 5.9 | 150.2 | 0.46 | 0.47 | 0.46 | 36.4 |
| 8 | T1 | 1860 | 3.0 | 0.660 | 4.8 | LOS A | 5.9 | 150.2 | 0.44 | 0.46 | 0.44 | 36.5 |
| 18 | R2 | 55 | 3.0 | 0.660 | 4.9 | LOS A | 5.8 | 149.5 | 0.42 | 0.45 | 0.42 | 35.3 |
| Approach | | 1925 | 3.0 | 0.660 | 4.9 | LOS A | 5.9 | 150.2 | 0.44 | 0.46 | 0.44 | 36.4 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 5 | 5.0 | 0.333 | 16.0 | LOS B | 1.6 | 41.1 | 0.78 | 0.91 | 0.86 | 34.5 |
| 6 | T1 | 1 | 5.0 | 0.333 | 10.1 | LOS B | 1.6 | 41.1 | 0.78 | 0.91 | 0.86 | 34.5 |
| 16 | R2 | 170 | 5.0 | 0.333 | 10.0 | LOS B | 1.6 | 41.1 | 0.78 | 0.91 | 0.86 | 33.5 |
| Approach | | 176 | 5.0 | 0.333 | 10.2 | LOS B | 1.6 | 41.1 | 0.78 | 0.91 | 0.86 | 33.5 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 110 | 5.0 | 0.237 | 9.9 | LOS A | 1.3 | 33.2 | 0.09 | 0.48 | 0.09 | 36.7 |
| 4 | T1 | 610 | 5.0 | 0.237 | 4.0 | LOS A | 1.3 | 33.6 | 0.09 | 0.41 | 0.09 | 37.4 |
| 14 | R2 | 5 | 5.0 | 0.237 | 4.2 | LOS A | 1.3 | 33.6 | 0.09 | 0.37 | 0.09 | 36.4 |
| Approach | | 725 | 5.0 | 0.237 | 4.9 | LOS A | 1.3 | 33.6 | 0.09 | 0.42 | 0.09 | 37.3 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 1 | 0.0 | 0.003 | 11.2 | LOS B | 0.0 | 0.2 | 0.41 | 0.57 | 0.41 | 36.1 |
| 2 | T1 | 1 | 0.0 | 0.003 | 5.4 | LOS A | 0.0 | 0.2 | 0.41 | 0.57 | 0.41 | 35.9 |
| 12 | R2 | 1 | 0.0 | 0.003 | 5.3 | LOS A | 0.0 | 0.2 | 0.41 | 0.57 | 0.41 | 34.9 |
| Approach | | 3 | 0.0 | 0.003 | 7.3 | LOS A | 0.0 | 0.2 | 0.41 | 0.57 | 0.41 | 35.6 |
| All Vehicles | | 2829 | 3.6 | 0.660 | 5.2 | LOS A | 5.9 | 150.2 | 0.37 | 0.48 | 0.37 | 36.4 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-88th Ave - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 50 | 1.0 | 0.713 | 20.5 | LOS C | 8.6 | 216.3 | 0.97 | 1.14 | 1.41 | 32.3 |
| 8 | T1 | 1220 | 1.0 | 0.713 | 13.5 | LOS B | 9.7 | 245.3 | 0.98 | 1.10 | 1.39 | 32.9 |
| 18 | R2 | 1 | 1.0 | 0.713 | 12.8 | LOS B | 9.7 | 245.3 | 0.98 | 1.07 | 1.37 | 32.3 |
| Approach | | 1271 | 1.0 | 0.713 | 13.8 | LOS B | 9.7 | 245.3 | 0.98 | 1.10 | 1.39 | 32.8 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 1 | 0.0 | 0.008 | 17.3 | LOS B | 0.0 | 1.0 | 0.84 | 0.74 | 0.84 | 33.2 |
| 6 | T1 | 1 | 0.0 | 0.008 | 11.4 | LOS B | 0.0 | 1.0 | 0.84 | 0.74 | 0.84 | 33.1 |
| 16 | R2 | 1 | 0.0 | 0.008 | 11.3 | LOS B | 0.0 | 1.0 | 0.84 | 0.74 | 0.84 | 32.2 |
| Approach | | 3 | 0.0 | 0.008 | 13.3 | LOS B | 0.0 | 1.0 | 0.84 | 0.74 | 0.84 | 32.8 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 1 | 3.0 | 0.138 | 9.9 | LOS A | 0.8 | 21.6 | 0.19 | 0.37 | 0.19 | 37.5 |
| 4 | T1 | 220 | 3.0 | 0.138 | 4.1 | LOS A | 0.8 | 21.6 | 0.19 | 0.37 | 0.19 | 37.4 |
| 14 | R2 | 205 | 3.0 | 0.146 | 4.3 | LOS A | 0.9 | 22.3 | 0.20 | 0.46 | 0.20 | 36.1 |
| Approach | | 426 | 3.0 | 0.146 | 4.2 | LOS A | 0.9 | 22.3 | 0.20 | 0.41 | 0.20 | 36.8 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 715 | 4.0 | 0.653 | 11.8 | LOS B | 4.9 | 127.6 | 0.55 | 0.72 | 0.58 | 33.7 |
| 2 | T1 | 1 | 4.0 | 0.653 | 6.0 | LOS A | 4.9 | 127.6 | 0.55 | 0.72 | 0.58 | 33.6 |
| 12 | R2 | 5 | 4.0 | 0.653 | 5.9 | LOS A | 4.9 | 127.6 | 0.55 | 0.72 | 0.58 | 32.7 |
| Approach | | 721 | 4.0 | 0.653 | 11.8 | LOS B | 4.9 | 127.6 | 0.55 | 0.72 | 0.58 | 33.7 |
| All Vehicles | | 2421 | 2.2 | 0.713 | 11.5 | LOS B | 9.7 | 245.3 | 0.71 | 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-93rd Ave - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 225 | 1.0 | 0.939 | 10.7 | LOS D | 42.3 | 1065.8 | 0.78 | 0.34 | 0.78 | 35.2 |
| 8 | T1 | 1120 | 1.0 | 0.939 | 4.7 | LOS D | 42.3 | 1065.8 | 0.78 | 0.34 | 0.78 | 35.1 |
| Approach | | 1345 | 1.0 | 0.939 | 5.7 | LOS A | 42.3 | 1065.8 | 0.78 | 0.34 | 0.78 | 35.1 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 170 | 4.0 | 0.154 | 4.7 | LOS A | 0.9 | 22.1 | 0.42 | 0.47 | 0.42 | 36.6 |
| 14 | R2 | 10 | 4.0 | 0.154 | 4.8 | LOS A | 0.9 | 22.1 | 0.42 | 0.47 | 0.42 | 35.5 |
| Approach | | 180 | 4.0 | 0.154 | 4.7 | LOS A | 0.9 | 22.1 | 0.42 | 0.47 | 0.42 | 36.5 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 20 | 6.0 | 0.145 | 10.5 | LOS B | 0.7 | 19.0 | 0.34 | 0.52 | 0.34 | 36.8 |
| 12 | R2 | 155 | 6.0 | 0.145 | 4.6 | LOS A | 0.7 | 19.0 | 0.34 | 0.52 | 0.34 | 35.6 |
| Approach | | 175 | 6.0 | 0.145 | 5.3 | LOS A | 0.7 | 19.0 | 0.34 | 0.52 | 0.34 | 35.7 |
| All Vehicles | | 1700 | 1.8 | 0.939 | 5.6 | LOS A | 42.3 | 1065.8 | 0.70 | 0.37 | 0.70 | 35.3 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 1 [AM 2040 Old Hwy 99-Henderson Blvd - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.687 | 10.6 | LOS B | 7.2 | 183.1 | 0.45 | 0.44 | 0.45 | 36.5 |
| 8 | T1 | 1835 | 3.0 | 0.687 | 4.6 | LOS A | 7.2 | 183.1 | 0.43 | 0.43 | 0.43 | 36.5 |
| 18 | R2 | 195 | 3.0 | 0.687 | 4.7 | LOS A | 7.1 | 182.3 | 0.41 | 0.43 | 0.41 | 35.4 |
| Approach | | 2035 | 3.0 | 0.687 | 4.7 | LOS A | 7.2 | 183.1 | 0.42 | 0.43 | 0.42 | 36.4 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 135 | 2.0 | 0.633 | 19.1 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 32.2 |
| 6 | T1 | 5 | 2.0 | 0.633 | 13.2 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 32.1 |
| 16 | R2 | 220 | 2.0 | 0.633 | 13.1 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 31.2 |
| Approach | | 360 | 2.0 | 0.633 | 15.4 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 31.6 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 70 | 5.0 | 0.265 | 10.5 | LOS B | 1.6 | 42.8 | 0.37 | 0.50 | 0.37 | 36.2 |
| 4 | T1 | 625 | 5.0 | 0.265 | 4.5 | LOS A | 1.7 | 44.6 | 0.37 | 0.46 | 0.37 | 36.5 |
| 14 | R2 | 25 | 5.0 | 0.265 | 4.6 | LOS A | 1.7 | 44.6 | 0.36 | 0.43 | 0.36 | 35.4 |
| Approach | | 720 | 5.0 | 0.265 | 5.1 | LOS A | 1.7 | 44.6 | 0.37 | 0.46 | 0.37 | 36.4 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.017 | 11.5 | LOS B | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.9 |
| 2 | T1 | 5 | 0.0 | 0.017 | 5.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.7 |
| 12 | R2 | 5 | 0.0 | 0.017 | 5.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 34.7 |
| Approach | | 15 | 0.0 | 0.017 | 7.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.4 |
| All Vehicles | | 3130 | 3.3 | 0.687 | 6.0 | LOS A | 7.2 | 183.1 | 0.46 | 0.51 | 0.51 | 35.8 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-79th Ave - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 10 | 3.0 | 0.684 | 10.9 | LOS B | 6.4 | 162.8 | 0.50 | 0.49 | 0.50 | 36.3 |
| 8 | T1 | 1910 | 3.0 | 0.684 | 5.0 | LOS A | 6.4 | 162.8 | 0.48 | 0.47 | 0.48 | 36.3 |
| 18 | R2 | 60 | 3.0 | 0.684 | 5.0 | LOS A | 6.3 | 162.4 | 0.46 | 0.46 | 0.46 | 35.1 |
| Approach | | 1980 | 3.0 | 0.684 | 5.0 | LOS A | 6.4 | 162.8 | 0.48 | 0.47 | 0.48 | 36.3 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 10 | 5.0 | 0.373 | 16.7 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 34.1 |
| 6 | T1 | 1 | 5.0 | 0.373 | 10.8 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 34.0 |
| 16 | R2 | 175 | 5.0 | 0.373 | 10.8 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 33.0 |
| Approach | | 186 | 5.0 | 0.373 | 11.1 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 33.1 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 120 | 5.0 | 0.263 | 9.9 | LOS A | 1.5 | 39.6 | 0.12 | 0.48 | 0.12 | 36.7 |
| 4 | T1 | 675 | 5.0 | 0.263 | 4.1 | LOS A | 1.6 | 40.3 | 0.11 | 0.41 | 0.11 | 37.3 |
| 14 | R2 | 5 | 5.0 | 0.263 | 4.2 | LOS A | 1.6 | 40.3 | 0.11 | 0.37 | 0.11 | 36.3 |
| Approach | | 800 | 5.0 | 0.263 | 4.9 | LOS A | 1.6 | 40.3 | 0.12 | 0.42 | 0.12 | 37.2 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 1 | 0.0 | 0.003 | 11.4 | LOS B | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 36.0 |
| 2 | T1 | 1 | 0.0 | 0.003 | 5.5 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 35.8 |
| 12 | R2 | 1 | 0.0 | 0.003 | 5.4 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 34.8 |
| Approach | | 3 | 0.0 | 0.003 | 7.4 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 35.5 |
| All Vehicles | | 2969 | 3.7 | 0.684 | 5.4 | LOS A | 6.4 | 162.8 | 0.40 | 0.49 | 0.41 | 36.3 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-88th Ave - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

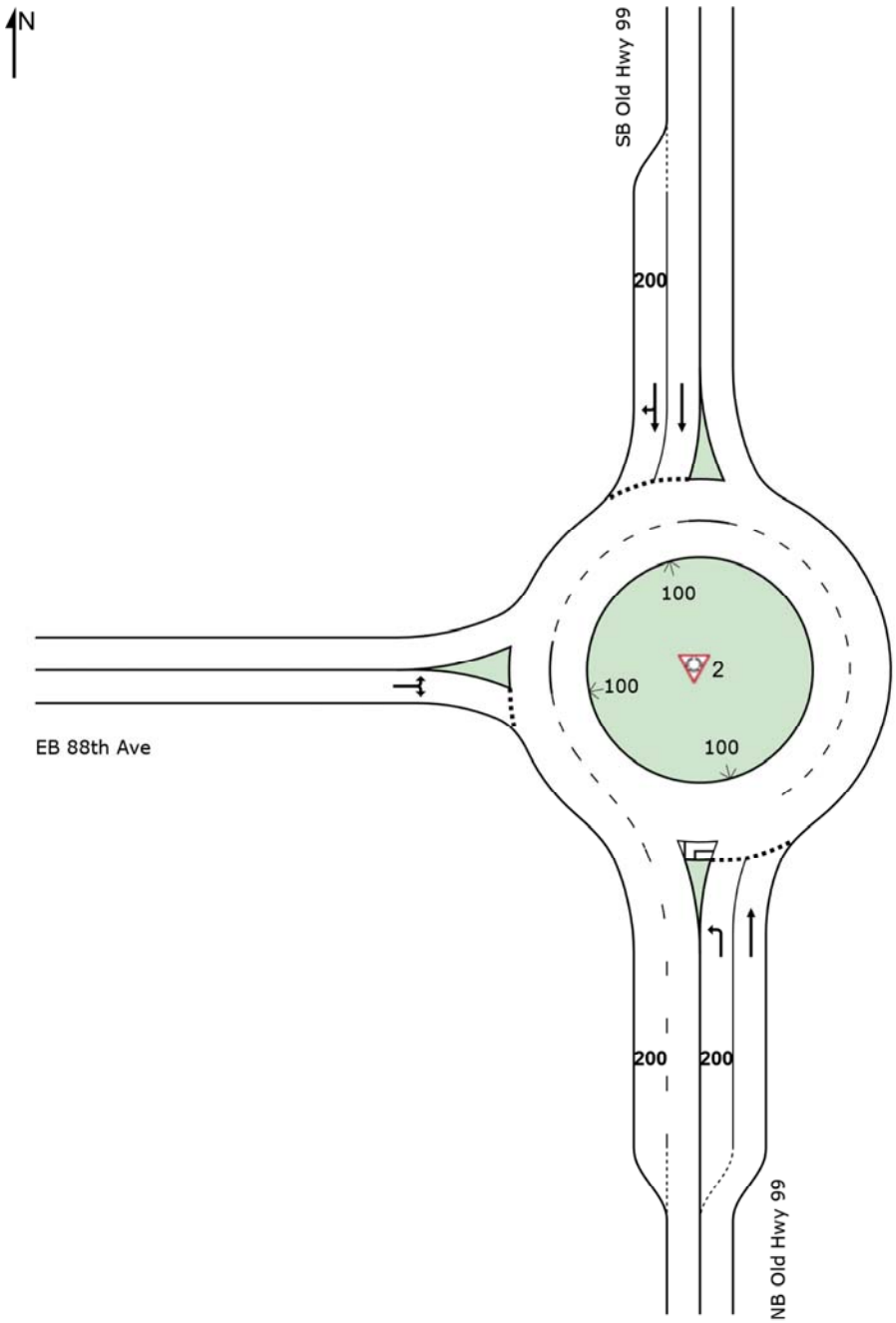
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 55 | 1.0 | 0.791 | 26.0 | LOS C | 11.4 | 287.5 | 1.00 | 1.28 | 1.71 | 29.9 |
| 8 | T1 | 1225 | 1.0 | 0.791 | 18.6 | LOS B | 13.3 | 336.4 | 1.00 | 1.24 | 1.68 | 30.6 |
| 18 | R2 | 10 | 1.0 | 0.791 | 17.7 | LOS B | 13.3 | 336.4 | 1.00 | 1.21 | 1.66 | 30.2 |
| Approach | | 1290 | 1.0 | 0.791 | 18.9 | LOS B | 13.3 | 336.4 | 1.00 | 1.24 | 1.68 | 30.6 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 5 | 2.0 | 0.097 | 18.4 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 33.1 |
| 6 | T1 | 5 | 2.0 | 0.097 | 12.5 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 33.0 |
| 16 | R2 | 25 | 2.0 | 0.097 | 12.5 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 32.1 |
| Approach | | 35 | 2.0 | 0.097 | 13.3 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 32.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 40 | 3.0 | 0.167 | 10.0 | LOS A | 1.0 | 26.0 | 0.22 | 0.43 | 0.22 | 37.0 |
| 4 | T1 | 225 | 3.0 | 0.167 | 4.1 | LOS A | 1.0 | 26.0 | 0.22 | 0.43 | 0.22 | 36.9 |
| 14 | R2 | 230 | 3.0 | 0.167 | 4.4 | LOS A | 1.0 | 25.1 | 0.23 | 0.46 | 0.23 | 36.0 |
| Approach | | 495 | 3.0 | 0.167 | 4.7 | LOS A | 1.0 | 26.0 | 0.22 | 0.44 | 0.22 | 36.5 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 732 | 4.0 | 0.698 | 12.9 | LOS B | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.5 |
| 2 | T1 | 10 | 4.0 | 0.698 | 7.0 | LOS A | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.4 |
| 12 | R2 | 5 | 4.0 | 0.698 | 7.0 | LOS A | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 32.5 |
| Approach | | 747 | 4.0 | 0.698 | 12.8 | LOS B | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.5 |
| All Vehicles | | 2567 | 2.3 | 0.791 | 14.3 | LOS B | 13.3 | 336.4 | 0.74 | 0.95 | 1.11 | 32.4 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [AM 2040 Old Hwy 99-93rd Ave -Land Use 2 (2 NB lanes)]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: SCJ ALLIANCE | Created: Tuesday, May 5, 2020 2:57:15 PM
Project: N:\Projects\0625 City of Tumwater\0625.29 Tumwater Old Hwy 99 and 79th Ave Corridor Study\Phase 02 - Corridor Traffic Validation

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-93rd Ave - Sensitivity Scenario multiple entry lanes]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 225 | 1.0 | 0.183 | 9.9 | LOS A | 0.9 | 22.9 | 0.11 | 0.62 | 0.11 | 34.8 |
| 8 | T1 | 1135 | 1.0 | 0.659 | 3.7 | LOS A | 6.8 | 170.3 | 0.18 | 0.34 | 0.18 | 37.9 |
| Approach | | 1360 | 1.0 | 0.659 | 4.8 | LOS A | 6.8 | 170.3 | 0.17 | 0.39 | 0.17 | 37.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 180 | 4.0 | 0.106 | 4.8 | LOS A | 0.4 | 10.2 | 0.28 | 0.45 | 0.28 | 36.9 |
| 14 | R2 | 10 | 4.0 | 0.053 | 5.2 | LOS A | 0.2 | 4.8 | 0.29 | 0.46 | 0.29 | 35.6 |
| Approach | | 190 | 4.0 | 0.106 | 4.8 | LOS A | 0.4 | 10.2 | 0.28 | 0.45 | 0.28 | 36.9 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 20 | 6.0 | 0.158 | 10.5 | LOS B | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 37.1 |
| 12 | R2 | 155 | 6.0 | 0.158 | 4.6 | LOS A | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 35.8 |
| Approach | | 175 | 6.0 | 0.158 | 5.2 | LOS A | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 35.9 |
| All Vehicles | | 1725 | 1.8 | 0.659 | 4.8 | LOS A | 6.8 | 170.3 | 0.19 | 0.41 | 0.19 | 37.1 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 90 | 885 | 5 | 5 | 555 | 110 | 35 | 10 | 10 | 160 | 5 | 65 |
| Future Volume (vph) | 90 | 885 | 5 | 5 | 555 | 110 | 35 | 10 | 10 | 160 | 5 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 12.0 | 56.5 | 56.5 | 44.5 | 44.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 13.3% | 62.8% | 62.8% | 49.4% | 49.4% | | 37.2% | 37.2% | | 37.2% | 37.2% | |
| Maximum Green (s) | 6.5 | 51.0 | 51.0 | 39.0 | 39.0 | | 28.0 | 28.0 | | 28.0 | 28.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 69.1 | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 885 | 5 | 5 | 555 | 110 | 35 | 10 | 10 | 160 | 5 | 65 |
| Future Volume (veh/h) | 90 | 885 | 5 | 5 | 555 | 110 | 35 | 10 | 10 | 160 | 5 | 65 |
| 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 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 96 | 941 | 5 | 5 | 590 | 117 | 37 | 11 | 11 | 170 | 5 | 69 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 130 | 1211 | 1026 | 309 | 703 | 139 | 209 | 62 | 36 | 362 | 16 | 219 |
| Arrive On Green | 0.07 | 0.64 | 0.64 | 0.46 | 0.46 | 0.46 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1795 | 1885 | 1598 | 593 | 1516 | 301 | 662 | 428 | 250 | 1401 | 109 | 1505 |
| Grp Volume(v), veh/h | 96 | 941 | 5 | 5 | 0 | 707 | 59 | 0 | 0 | 170 | 0 | 74 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1885 | 1598 | 593 | 0 | 1816 | 1339 | 0 | 0 | 1401 | 0 | 1614 |
| Q Serve(g_s), s | 2.7 | 18.5 | 0.1 | 0.3 | 0.0 | 17.7 | 0.4 | 0.0 | 0.0 | 2.7 | 0.0 | 2.1 |
| Cycle Q Clear(g_c), s | 2.7 | 18.5 | 0.1 | 9.5 | 0.0 | 17.7 | 2.6 | 0.0 | 0.0 | 5.3 | 0.0 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.17 | 0.63 | | 0.19 | 1.00 | | 0.93 |
| Lane Grp Cap(c), veh/h | 130 | 1211 | 1026 | 309 | 0 | 842 | 308 | 0 | 0 | 362 | 0 | 234 |
| V/C Ratio(X) | 0.74 | 0.78 | 0.00 | 0.02 | 0.00 | 0.84 | 0.19 | 0.00 | 0.00 | 0.47 | 0.00 | 0.32 |
| Avail Cap(c_a), veh/h | 225 | 1857 | 1574 | 480 | 0 | 1368 | 890 | 0 | 0 | 916 | 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 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.5 | 6.6 | 3.3 | 13.3 | 0.0 | 12.2 | 19.7 | 0.0 | 0.0 | 21.0 | 0.0 | 19.8 |
| Incr Delay (d2), s/veh | 3.1 | 1.2 | 0.0 | 0.0 | 0.0 | 2.6 | 0.1 | 0.0 | 0.0 | 0.4 | 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 | 1.1 | 3.0 | 0.0 | 0.0 | 0.0 | 5.1 | 0.6 | 0.0 | 0.0 | 1.8 | 0.0 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 26.6 | 7.8 | 3.3 | 13.3 | 0.0 | 14.8 | 19.9 | 0.0 | 0.0 | 21.4 | 0.0 | 20.1 |
| LnGrp LOS | C | A | A | B | A | B | B | A | A | C | A | C |
| Approach Vol, veh/h | | 1042 | | | 712 | | | 59 | | | 244 | |
| Approach Delay, s/veh | | 9.5 | | | 14.8 | | | 19.9 | | | 21.0 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.2 | 29.5 | | 13.0 | | 38.8 | | 13.0 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 6.5 | 39.0 | | 28.0 | | 51.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.7 | 19.7 | | 4.6 | | 20.5 | | 7.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.3 | | 0.1 | | 7.5 | | 0.3 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 13.0 | |
| HCM 6th LOS | | B | |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 5 | 15 | 1 | 135 | 125 | 930 | 15 | 1 | 500 | 15 |
| Future Vol, veh/h | 2 | 1 | 5 | 15 | 1 | 135 | 125 | 930 | 15 | 1 | 500 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 1 | 5 | 16 | 1 | 148 | 137 | 1022 | 16 | 1 | 549 | 16 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1938 | 1871 | 1030 | 1866 | 1871 | 557 | 565 | 0 | 0 | 1038 | 0 | 0 |
| Stage 1 | 1304 | 1304 | - | 559 | 559 | - | - | - | - | - | - | - |
| Stage 2 | 634 | 567 | - | 1307 | 1312 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.12 | 6.52 | 6.22 | 4.11 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.518 | 4.018 | 3.318 | 2.209 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 50 | 73 | 286 | 56 | 72 | 530 | 1012 | - | - | 666 | - | - |
| Stage 1 | 199 | 232 | - | 513 | 511 | - | - | - | - | - | - | - |
| Stage 2 | 471 | 510 | - | 196 | 228 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 32 | 63 | 286 | 48 | 62 | 530 | 1012 | - | - | 666 | - | - |
| Mov Cap-2 Maneuver | 32 | 63 | - | 48 | 62 | - | - | - | - | - | - | - |
| Stage 1 | 172 | 201 | - | 444 | 510 | - | - | - | - | - | - | - |
| Stage 2 | 338 | 509 | - | 165 | 197 | - | - | - | - | - | - | - |

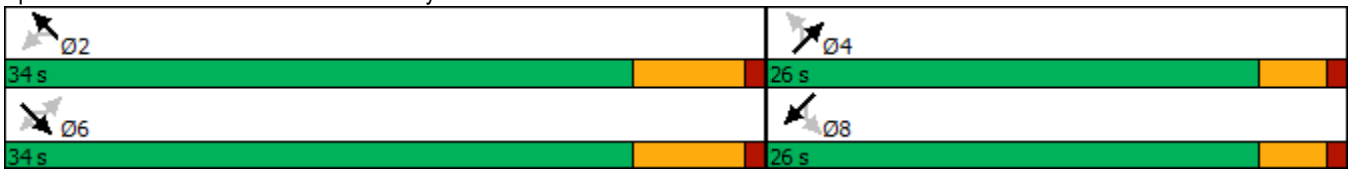
| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 53.4 | 25.1 | 1.1 | 0 |
| HCM LOS | F | D | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 666 | - | - | 83 | 49 | 530 | 1012 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.106 | 0.359 | 0.28 | 0.136 | - | - |
| HCM Control Delay (s) | 10.4 | 0 | - | 53.4 | 115 | 14.4 | 9.1 | - | - |
| HCM Lane LOS | B | A | - | F | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.3 | 1.3 | 1.1 | 0.5 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 780 | 205 | 15 | 305 | 1 | 175 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (vph) | 1 | 780 | 205 | 15 | 305 | 1 | 175 | 1 | 50 | 1 | 2 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Total Split (%) | 56.7% | 56.7% | 56.7% | 56.7% | 56.7% | | 43.3% | 43.3% | | 43.3% | 43.3% | |
| Maximum Green (s) | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 60 | |
| Actuated Cycle Length: 53.5 | |
| Natural Cycle: 65 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 780 | 205 | 15 | 305 | 1 | 175 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (veh/h) | 1 | 780 | 205 | 15 | 305 | 1 | 175 | 1 | 50 | 1 | 2 | 1 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 876 | 230 | 17 | 343 | 1 | 197 | 1 | 56 | 1 | 2 | 1 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 662 | 1051 | 891 | 272 | 1047 | 3 | 450 | 5 | 294 | 151 | 210 | 82 |
| Arrive On Green | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1045 | 1885 | 1598 | 514 | 1879 | 5 | 1414 | 28 | 1561 | 195 | 1114 | 436 |
| Grp Volume(v), veh/h | 1 | 876 | 230 | 17 | 0 | 344 | 197 | 0 | 57 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1045 | 1885 | 1598 | 514 | 0 | 1884 | 1414 | 0 | 1589 | 1745 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 15.1 | 2.9 | 1.1 | 0.0 | 3.9 | 5.1 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 3.9 | 15.1 | 2.9 | 16.2 | 0.0 | 3.9 | 5.2 | 0.0 | 1.2 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.98 | 0.25 | | 0.25 |
| Lane Grp Cap(c), veh/h | 662 | 1051 | 891 | 272 | 0 | 1050 | 450 | 0 | 300 | 443 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.83 | 0.26 | 0.06 | 0.00 | 0.33 | 0.44 | 0.00 | 0.19 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 822 | 1340 | 1136 | 351 | 0 | 1340 | 973 | 0 | 888 | 1059 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 5.8 | 7.2 | 4.5 | 13.9 | 0.0 | 4.7 | 15.0 | 0.0 | 13.4 | 13.0 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 3.7 | 0.2 | 0.1 | 0.0 | 0.2 | 0.7 | 0.0 | 0.3 | 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 | 2.8 | 0.3 | 0.1 | 0.0 | 0.5 | 1.5 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 5.8 | 10.9 | 4.7 | 14.0 | 0.0 | 4.9 | 15.7 | 0.0 | 13.8 | 13.0 | 0.0 | 0.0 |
| LnGrp LOS | A | B | A | B | A | A | B | A | B | B | A | A |
| Approach Vol, veh/h | | 1107 | | | 361 | | | 254 | | | 4 | |
| Approach Delay, s/veh | | 9.6 | | | 5.3 | | | 15.3 | | | 13.0 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 28.0 | | 11.4 | | 28.0 | | 11.4 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 28.0 | | 22.0 | | 28.0 | | 22.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 18.2 | | 7.2 | | 17.1 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 1.3 | | 0.7 | | 4.8 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 9.6 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 700 | 25 | 100 | 240 | 20 | 165 |
| Future Vol, veh/h | 700 | 25 | 100 | 240 | 20 | 165 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 1 | 1 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 778 | 28 | 111 | 267 | 22 | 183 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 806 | 0 | 1267 | 778 |
| Stage 1 | - | - | - | - | 778 | - |
| Stage 2 | - | - | - | - | 489 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | - | - | 819 | - | 187 | 398 |
| Stage 1 | - | - | - | - | 455 | - |
| Stage 2 | - | - | - | - | 619 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 819 | - | 162 | 398 |
| Mov Cap-2 Maneuver | - | - | - | - | 360 | - |
| Stage 1 | - | - | - | - | 455 | - |
| Stage 2 | - | - | - | - | 535 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 3 | 20.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 360 | 398 | - | - | 819 | - |
| HCM Lane V/C Ratio | 0.062 | 0.461 | - | - | 0.136 | - |
| HCM Control Delay (s) | 15.7 | 21.5 | - | - | 10.1 | - |
| HCM Lane LOS | C | C | - | - | B | - |
| HCM 95th %tile Q(veh) | 0.2 | 2.4 | - | - | 0.5 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Future Volume (vph) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 12.4 | 56.5 | 56.5 | 44.1 | 44.1 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 13.8% | 62.8% | 62.8% | 49.0% | 49.0% | | 37.2% | 37.2% | | 37.2% | 37.2% | |
| Maximum Green (s) | 6.9 | 51.0 | 51.0 | 38.6 | 38.6 | | 28.0 | 28.0 | | 28.0 | 28.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 73.8 | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Future Volume (veh/h) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| 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 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 116 | 1053 | 5 | 5 | 626 | 121 | 37 | 16 | 16 | 179 | 5 | 84 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 149 | 1239 | 1050 | 246 | 726 | 140 | 177 | 75 | 47 | 356 | 13 | 226 |
| Arrive On Green | 0.08 | 0.66 | 0.66 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1795 | 1885 | 1598 | 533 | 1523 | 294 | 532 | 507 | 314 | 1388 | 91 | 1521 |
| Grp Volume(v), veh/h | 116 | 1053 | 5 | 5 | 0 | 747 | 69 | 0 | 0 | 179 | 0 | 89 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1885 | 1598 | 533 | 0 | 1817 | 1353 | 0 | 0 | 1388 | 0 | 1611 |
| Q Serve(g_s), s | 3.6 | 24.6 | 0.1 | 0.4 | 0.0 | 20.7 | 0.3 | 0.0 | 0.0 | 2.9 | 0.0 | 2.8 |
| Cycle Q Clear(g_c), s | 3.6 | 24.6 | 0.1 | 14.8 | 0.0 | 20.7 | 3.2 | 0.0 | 0.0 | 6.1 | 0.0 | 2.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.16 | 0.54 | | 0.23 | 1.00 | | 0.94 |
| Lane Grp Cap(c), veh/h | 149 | 1239 | 1050 | 246 | 0 | 867 | 299 | 0 | 0 | 356 | 0 | 239 |
| V/C Ratio(X) | 0.78 | 0.85 | 0.00 | 0.02 | 0.00 | 0.86 | 0.23 | 0.00 | 0.00 | 0.50 | 0.00 | 0.37 |
| Avail Cap(c_a), veh/h | 219 | 1699 | 1440 | 356 | 0 | 1240 | 816 | 0 | 0 | 837 | 0 | 797 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.4 | 7.5 | 3.3 | 17.2 | 0.0 | 13.1 | 21.5 | 0.0 | 0.0 | 22.9 | 0.0 | 21.7 |
| Incr Delay (d2), s/veh | 5.4 | 3.2 | 0.0 | 0.0 | 0.0 | 4.6 | 0.1 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 5.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.8 | 0.0 | 0.0 | 2.1 | 0.0 | 1.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 30.9 | 10.7 | 3.3 | 17.3 | 0.0 | 17.7 | 21.6 | 0.0 | 0.0 | 23.3 | 0.0 | 22.1 |
| LnGrp LOS | C | B | A | B | A | B | C | A | A | C | A | C |
| Approach Vol, veh/h | | 1174 | | | 752 | | | 69 | | | 268 | |
| Approach Delay, s/veh | | 12.7 | | | 17.7 | | | 21.6 | | | 22.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.2 | 32.5 | | 13.9 | | 42.7 | | 13.9 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 6.9 | 38.6 | | 28.0 | | 51.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 5.6 | 22.7 | | 5.2 | | 26.6 | | 8.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.3 | | 0.2 | | 8.5 | | 0.4 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 15.8 | |
| HCM 6th LOS | | B | |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 5 | 20 | 1 | 135 | 125 | 1050 | 1 | 1 | 535 | 15 |
| Future Vol, veh/h | 2 | 1 | 5 | 20 | 1 | 135 | 125 | 1050 | 1 | 1 | 535 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 1 | 5 | 21 | 1 | 142 | 132 | 1105 | 1 | 1 | 563 | 16 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 2015 | 1951 | 1106 | 1946 | 1943 | 571 | 579 | 0 | 0 | 1106 | 0 | 0 |
| Stage 1 | 1370 | 1370 | - | 573 | 573 | - | - | - | - | - | - | - |
| Stage 2 | 645 | 581 | - | 1373 | 1370 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.12 | 6.52 | 6.22 | 4.11 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.518 | 4.018 | 3.318 | 2.209 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 44 | 65 | 258 | 49 | 65 | 520 | 1000 | - | - | 628 | - | - |
| Stage 1 | 183 | 216 | - | 505 | 504 | - | - | - | - | - | - | - |
| Stage 2 | 464 | 503 | - | 180 | 214 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 28 | 56 | 258 | 42 | 56 | 520 | 1000 | - | - | 628 | - | - |
| Mov Cap-2 Maneuver | 28 | 56 | - | 42 | 56 | - | - | - | - | - | - | - |
| Stage 1 | 159 | 187 | - | 438 | 503 | - | - | - | - | - | - | - |
| Stage 2 | 336 | 502 | - | 152 | 186 | - | - | - | - | - | - | - |

| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 59.8 | 33.6 | 1 | 0 |
| HCM LOS | F | D | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 628 | - | - | 74 | 43 | 520 | 1000 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.114 | 0.514 | 0.273 | 0.132 | - | - |
| HCM Control Delay (s) | 10.7 | 0 | - | 59.8 | 156.4 | 14.5 | 9.1 | - | - |
| HCM Lane LOS | B | A | - | F | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.4 | 1.9 | 1.1 | 0.5 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (vph) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Total Split (%) | 71.1% | 71.1% | 71.1% | 71.1% | 71.1% | | 28.9% | 28.9% | | 28.9% | 28.9% | |
| Maximum Green (s) | 58.0 | 58.0 | 58.0 | 58.0 | 58.0 | | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 66 | |
| Natural Cycle: 65 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (veh/h) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 895 | 263 | 16 | 358 | 1 | 195 | 1 | 53 | 1 | 2 | 1 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 676 | 1123 | 951 | 272 | 1119 | 3 | 418 | 5 | 284 | 137 | 201 | 79 |
| Arrive On Green | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Sat Flow, veh/h | 1031 | 1885 | 1598 | 489 | 1879 | 5 | 1414 | 29 | 1560 | 205 | 1101 | 436 |
| Grp Volume(v), veh/h | 1 | 895 | 263 | 16 | 0 | 359 | 195 | 0 | 54 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1031 | 1885 | 1598 | 489 | 0 | 1884 | 1414 | 0 | 1590 | 1742 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 16.5 | 3.6 | 1.2 | 0.0 | 4.3 | 5.8 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 4.3 | 16.5 | 3.6 | 17.6 | 0.0 | 4.3 | 5.9 | 0.0 | 1.3 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.98 | 0.25 | | 0.25 |
| Lane Grp Cap(c), veh/h | 676 | 1123 | 951 | 272 | 0 | 1122 | 418 | 0 | 290 | 418 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.80 | 0.28 | 0.06 | 0.00 | 0.32 | 0.47 | 0.00 | 0.19 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 1390 | 2429 | 2058 | 611 | 0 | 2428 | 852 | 0 | 777 | 928 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 5.6 | 7.0 | 4.4 | 13.8 | 0.0 | 4.5 | 17.4 | 0.0 | 15.6 | 15.1 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 1.3 | 0.2 | 0.1 | 0.0 | 0.2 | 0.8 | 0.0 | 0.3 | 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 | 2.6 | 0.4 | 0.1 | 0.0 | 0.6 | 1.8 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 5.6 | 8.4 | 4.6 | 13.9 | 0.0 | 4.7 | 18.2 | 0.0 | 15.9 | 15.1 | 0.0 | 0.0 |
| LnGrp LOS | A | A | A | B | A | A | B | A | B | B | A | A |
| Approach Vol, veh/h | | 1159 | | | 375 | | | 249 | | | 4 | |
| Approach Delay, s/veh | | 7.5 | | | 5.1 | | | 17.7 | | | 15.1 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 32.8 | | 12.2 | | 32.8 | | 12.2 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 58.0 | | 22.0 | | 58.0 | | 22.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 19.6 | | 7.9 | | 18.5 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 2.2 | | 0.7 | | 8.4 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 8.4 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 775 | 25 | 120 | 270 | 20 | 170 |
| Future Vol, veh/h | 775 | 25 | 120 | 270 | 20 | 170 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 1 | 1 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 816 | 26 | 126 | 284 | 21 | 179 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 842 | 0 | 1352 | 816 |
| Stage 1 | - | - | - | - | 816 | - |
| Stage 2 | - | - | - | - | 536 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | - | - | 794 | - | 166 | 378 |
| Stage 1 | - | - | - | - | 436 | - |
| Stage 2 | - | - | - | - | 589 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 794 | - | 140 | 378 |
| Mov Cap-2 Maneuver | - | - | - | - | 337 | - |
| Stage 1 | - | - | - | - | 436 | - |
| Stage 2 | - | - | - | - | 495 | - |

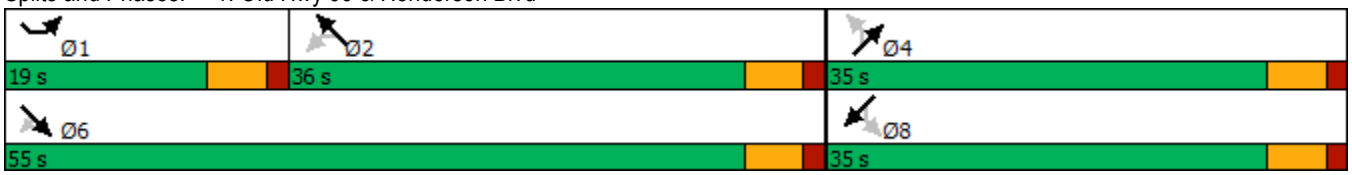
| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 3.2 | 22.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 337 | 378 | - | - | 794 | - |
| HCM Lane V/C Ratio | 0.062 | 0.473 | - | - | 0.159 | - |
| HCM Control Delay (s) | 16.4 | 22.8 | - | - | 10.4 | - |
| HCM Lane LOS | C | C | - | - | B | - |
| HCM 95th %tile Q(veh) | 0.2 | 2.5 | - | - | 0.6 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Future Volume (vph) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 19.0 | 55.0 | 55.0 | 36.0 | 36.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Total Split (%) | 21.1% | 61.1% | 61.1% | 40.0% | 40.0% | | 38.9% | 38.9% | | 38.9% | 38.9% | |
| Maximum Green (s) | 13.5 | 49.5 | 49.5 | 30.5 | 30.5 | | 29.5 | 29.5 | | 29.5 | 29.5 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 15.0 | 15.0 | 16.0 | 16.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 56.7 | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| Future Volume (veh/h) | 110 | 1000 | 5 | 5 | 595 | 115 | 35 | 15 | 15 | 170 | 5 | 80 |
| 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 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 116 | 1053 | 5 | 5 | 626 | 121 | 37 | 16 | 16 | 179 | 5 | 84 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 163 | 2010 | 896 | 358 | 988 | 191 | 230 | 95 | 56 | 427 | 15 | 248 |
| Arrive On Green | 0.09 | 0.56 | 0.56 | 0.33 | 0.33 | 0.33 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Sat Flow, veh/h | 1795 | 3582 | 1598 | 533 | 2971 | 573 | 561 | 584 | 346 | 1388 | 91 | 1521 |
| Grp Volume(v), veh/h | 116 | 1053 | 5 | 5 | 374 | 373 | 69 | 0 | 0 | 179 | 0 | 89 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1791 | 1598 | 533 | 1777 | 1767 | 1491 | 0 | 0 | 1388 | 0 | 1611 |
| Q Serve(g_s), s | 2.5 | 7.3 | 0.1 | 0.3 | 7.1 | 7.1 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 2.0 |
| Cycle Q Clear(g_c), s | 2.5 | 7.3 | 0.1 | 0.3 | 7.1 | 7.1 | 2.0 | 0.0 | 0.0 | 4.3 | 0.0 | 2.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.32 | 0.54 | | 0.23 | 1.00 | | 0.94 |
| Lane Grp Cap(c), veh/h | 163 | 2010 | 896 | 358 | 591 | 587 | 382 | 0 | 0 | 427 | 0 | 263 |
| V/C Ratio(X) | 0.71 | 0.52 | 0.01 | 0.01 | 0.63 | 0.63 | 0.18 | 0.00 | 0.00 | 0.42 | 0.00 | 0.34 |
| Avail Cap(c_a), veh/h | 608 | 4446 | 1983 | 588 | 1359 | 1352 | 1243 | 0 | 0 | 1227 | 0 | 1192 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.6 | 5.4 | 3.9 | 9.0 | 11.3 | 11.3 | 14.5 | 0.0 | 0.0 | 15.6 | 0.0 | 14.8 |
| Incr Delay (d2), s/veh | 2.2 | 0.2 | 0.0 | 0.0 | 1.1 | 1.1 | 0.1 | 0.0 | 0.0 | 0.2 | 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 | 0.9 | 0.9 | 0.0 | 0.0 | 1.9 | 1.9 | 0.5 | 0.0 | 0.0 | 1.3 | 0.0 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 19.8 | 5.7 | 3.9 | 9.0 | 12.4 | 12.4 | 14.6 | 0.0 | 0.0 | 15.9 | 0.0 | 15.1 |
| LnGrp LOS | B | A | A | A | B | B | B | A | A | B | A | B |
| Approach Vol, veh/h | | 1174 | | | 752 | | | 69 | | | 268 | |
| Approach Delay, s/veh | | 7.0 | | | 12.4 | | | 14.6 | | | 15.6 | |
| Approach LOS | | A | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.1 | 18.8 | | 12.0 | | 27.9 | | 12.0 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 13.5 | 30.5 | | 29.5 | | 49.5 | | 29.5 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.5 | 9.1 | | 4.0 | | 9.3 | | 6.3 | | | | |
| Green Ext Time (p_c), s | 0.1 | 4.1 | | 0.2 | | 8.1 | | 0.4 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 10.1 | | | | | | | | | |
| HCM 6th LOS | | | B | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 5 | 20 | 1 | 135 | 125 | 1050 | 1 | 1 | 535 | 15 |
| Future Vol, veh/h | 2 | 1 | 5 | 20 | 1 | 135 | 125 | 1050 | 1 | 1 | 535 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 1 | 5 | 21 | 1 | 142 | 132 | 1105 | 1 | 1 | 563 | 16 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1654 | 1951 | 553 | 1390 | 1943 | 290 | 579 | 0 | 0 | 1106 | 0 | 0 |
| Stage 1 | 1370 | 1370 | - | 573 | 573 | - | - | - | - | - | - | - |
| Stage 2 | 284 | 581 | - | 817 | 1370 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.5 | 6.5 | 6.9 | 7.54 | 6.54 | 6.94 | 4.12 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.5 | 5.5 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.5 | 5.5 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.52 | 4.02 | 3.32 | 2.21 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 66 | 65 | 482 | 102 | 64 | 707 | 998 | - | - | 621 | - | - |
| Stage 1 | 157 | 216 | - | 472 | 502 | - | - | - | - | - | - | - |
| Stage 2 | 705 | 503 | - | 337 | 212 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 47 | 56 | 482 | 89 | 55 | 707 | 998 | - | - | 621 | - | - |
| Mov Cap-2 Maneuver | 47 | 56 | - | 89 | 55 | - | - | - | - | - | - | - |
| Stage 1 | 136 | 187 | - | 410 | 501 | - | - | - | - | - | - | - |
| Stage 2 | 561 | 502 | - | 288 | 184 | - | - | - | - | - | - | - |

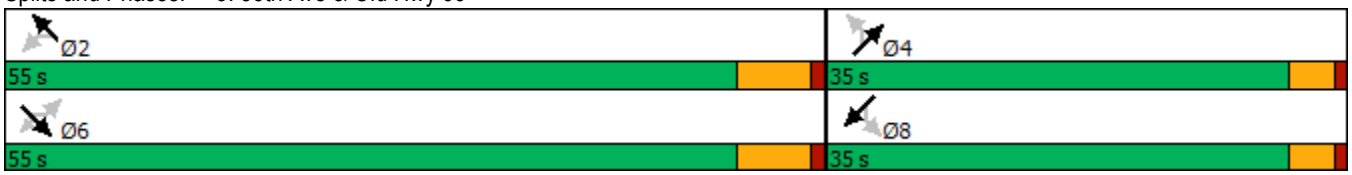
| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 39.4 | 18.1 | 1 | 0 |
| HCM LOS | E | C | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 621 | - | - | 113 | 86 | 707 | 998 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.075 | 0.257 | 0.201 | 0.132 | - | - |
| HCM Control Delay (s) | 10.8 | 0 | - | 39.4 | 60.8 | 11.4 | 9.2 | - | - |
| HCM Lane LOS | B | A | - | E | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.9 | 0.7 | 0.5 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (vph) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 489 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 6.7 | | | 26.4 | | | 6.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Total Split (%) | 61.1% | 61.1% | 61.1% | 61.1% | 61.1% | | 38.9% | 38.9% | | 38.9% | 38.9% | |
| Maximum Green (s) | 49.0 | 49.0 | 49.0 | 49.0 | 49.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |
| Walk Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | | 17.0 | 17.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 45.7 | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99



| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| Future Volume (veh/h) | 1 | 850 | 250 | 15 | 340 | 1 | 185 | 1 | 50 | 1 | 2 | 1 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 895 | 263 | 16 | 358 | 1 | 195 | 1 | 53 | 1 | 2 | 1 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 672 | 1732 | 773 | 384 | 1772 | 5 | 508 | 6 | 304 | 179 | 222 | 85 |
| Arrive On Green | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1031 | 3582 | 1598 | 489 | 3664 | 10 | 1414 | 29 | 1560 | 177 | 1138 | 438 |
| Grp Volume(v), veh/h | 1 | 895 | 263 | 16 | 175 | 184 | 195 | 0 | 54 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1031 | 1791 | 1598 | 489 | 1791 | 1883 | 1414 | 0 | 1590 | 1753 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 5.4 | 3.2 | 0.7 | 1.7 | 1.7 | 3.9 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.8 | 5.4 | 3.2 | 6.1 | 1.7 | 1.7 | 4.0 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.01 | 1.00 | | 0.98 | 0.25 | | 0.25 |
| Lane Grp Cap(c), veh/h | 672 | 1732 | 773 | 384 | 866 | 911 | 508 | 0 | 310 | 487 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.52 | 0.34 | 0.04 | 0.20 | 0.20 | 0.38 | 0.00 | 0.17 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 1796 | 5639 | 2515 | 917 | 2819 | 2965 | 1640 | 0 | 1583 | 1820 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 5.1 | 5.5 | 5.0 | 7.6 | 4.6 | 4.6 | 11.7 | 0.0 | 10.4 | 10.1 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.2 | 0.3 | 0.0 | 0.1 | 0.1 | 0.5 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.5 | 0.3 | 0.0 | 0.2 | 0.2 | 1.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 5.1 | 5.8 | 5.2 | 7.7 | 4.7 | 4.7 | 12.2 | 0.0 | 10.7 | 10.1 | 0.0 | 0.0 |
| LnGrp LOS | A | A | A | A | A | A | B | A | B | B | A | A |
| Approach Vol, veh/h | | 1159 | | | 375 | | | 249 | | | 4 | |
| Approach Delay, s/veh | | 5.6 | | | 4.8 | | | 11.8 | | | 10.1 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 21.1 | | 10.1 | | 21.1 | | 10.1 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 49.0 | | 31.0 | | 49.0 | | 31.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 8.1 | | 6.0 | | 7.4 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 2.1 | | 0.8 | | 7.7 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 6.4 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 775 | 25 | 120 | 270 | 20 | 170 |
| Future Vol, veh/h | 775 | 25 | 120 | 270 | 20 | 170 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 1 | 1 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 816 | 26 | 126 | 284 | 21 | 179 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 842 | 0 | 1352 | 816 |
| Stage 1 | - | - | - | - | 816 | - |
| Stage 2 | - | - | - | - | 536 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | - | - | 794 | - | 166 | 378 |
| Stage 1 | - | - | - | - | 436 | - |
| Stage 2 | - | - | - | - | 589 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 794 | - | 140 | 378 |
| Mov Cap-2 Maneuver | - | - | - | - | 337 | - |
| Stage 1 | - | - | - | - | 436 | - |
| Stage 2 | - | - | - | - | 495 | - |

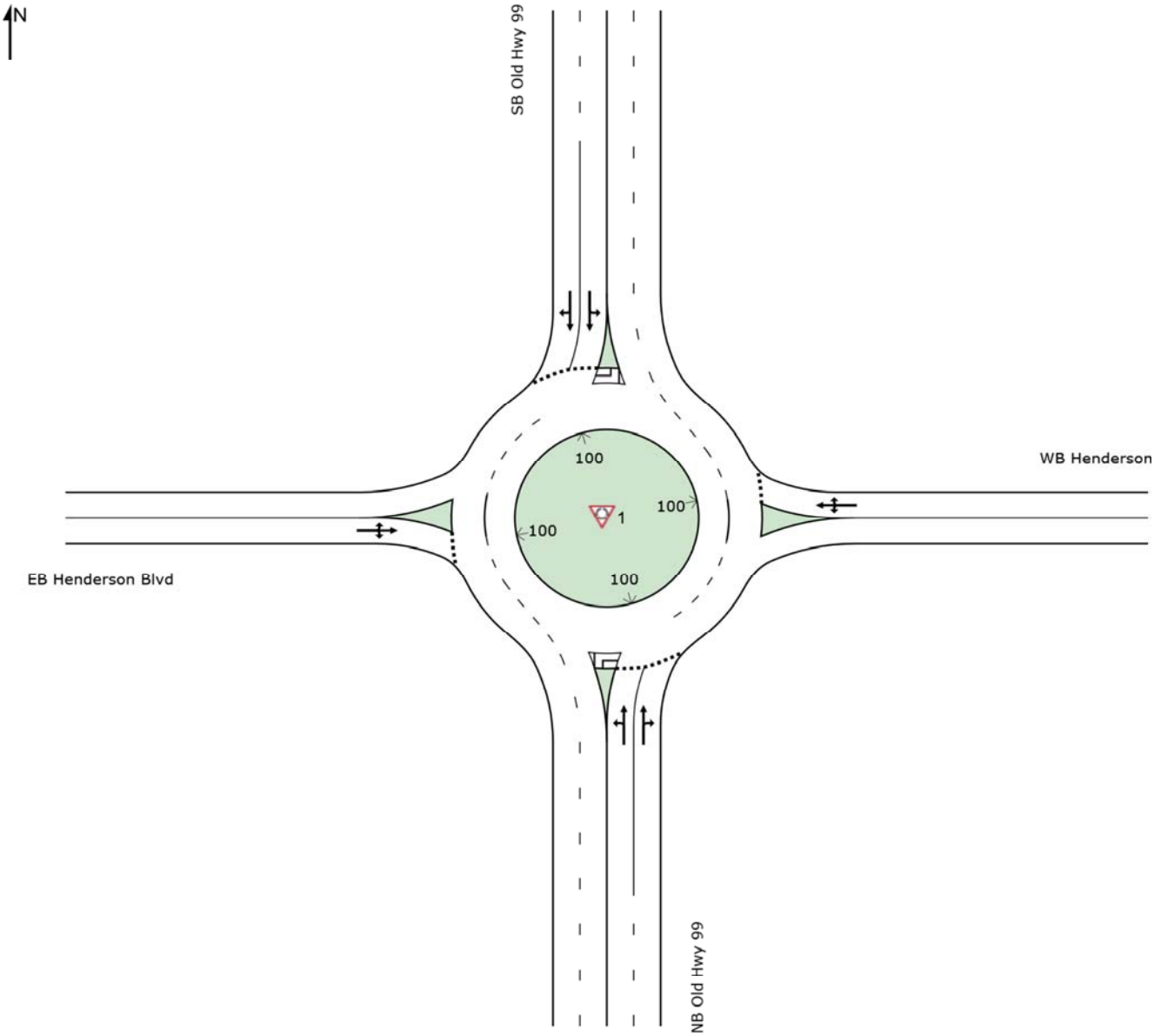
| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 3.2 | 22.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 337 | 378 | - | - | 794 | - |
| HCM Lane V/C Ratio | 0.062 | 0.473 | - | - | 0.159 | - |
| HCM Control Delay (s) | 16.4 | 22.8 | - | - | 10.4 | - |
| HCM Lane LOS | C | C | - | - | B | - |
| HCM 95th %tile Q(veh) | 0.2 | 2.5 | - | - | 0.6 | - |

# SITE LAYOUT

## Site: 1 [AM 2025 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: SCJ ALLIANCE | Created: Monday, April 13, 2020 9:24:21 AM
Project: N:\Projects\0625 City of Tumwater\0625.29 Tumwater Old Hwy 99 and 79th Ave Corridor Study\Phase 04 - Alternatives Analysis\Operations\Old Hwy 99-Henderson.sip8

# MOVEMENT SUMMARY

## Site: 1 [PM 2025 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2025
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

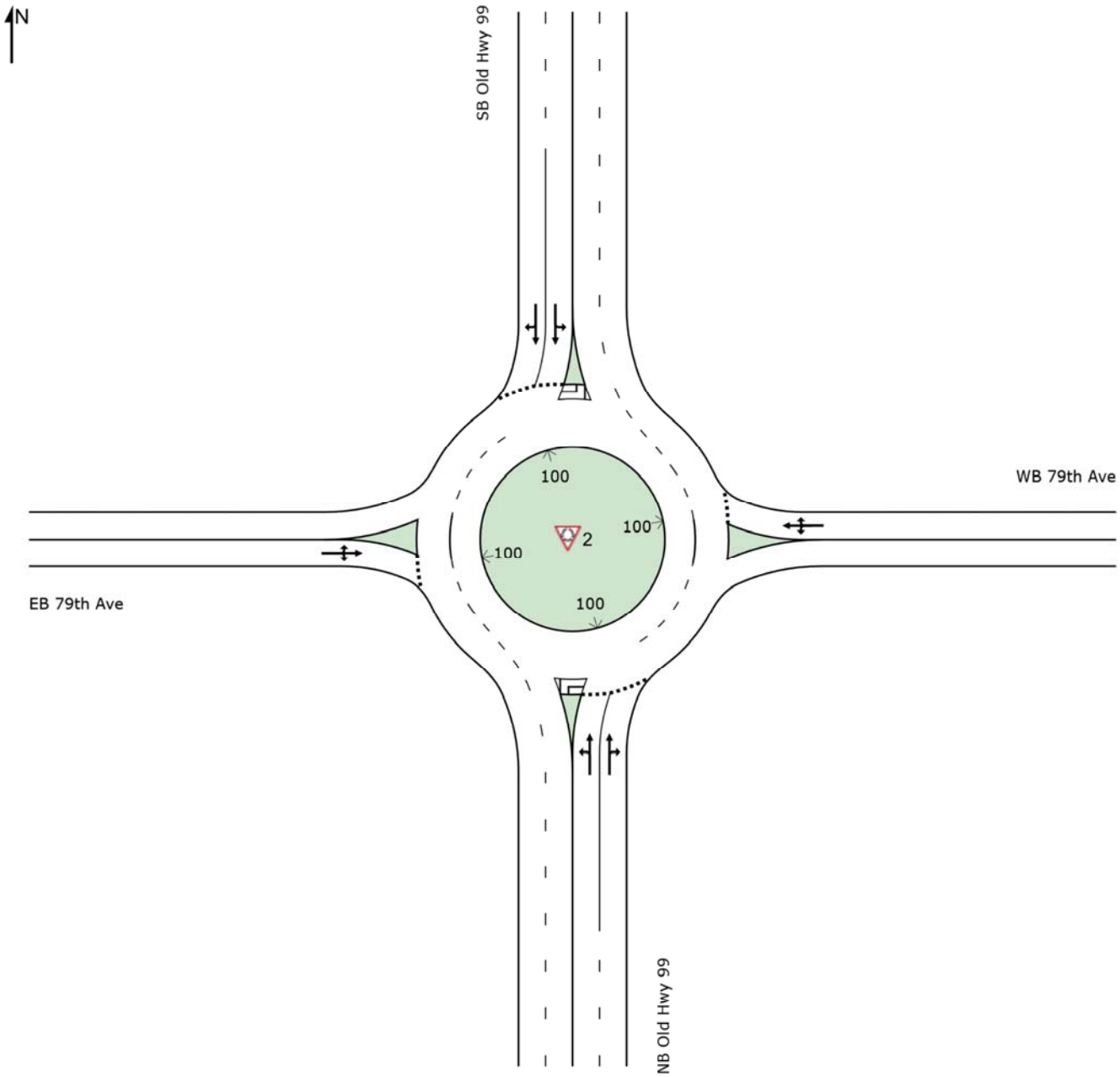
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 2.0 | 0.273 | 10.5 | LOS B | 1.5 | 37.9 | 0.35 | 0.45 | 0.35 | 36.9 |
| 8 | T1 | 595 | 2.0 | 0.273 | 4.6 | LOS A | 1.5 | 38.6 | 0.34 | 0.46 | 0.34 | 36.9 |
| 18 | R2 | 115 | 2.0 | 0.273 | 4.7 | LOS A | 1.5 | 38.6 | 0.34 | 0.46 | 0.34 | 35.6 |
| Approach | | 715 | 2.0 | 0.273 | 4.7 | LOS A | 1.5 | 38.6 | 0.34 | 0.46 | 0.34 | 36.7 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 170 | 1.0 | 0.306 | 12.0 | LOS B | 1.2 | 30.2 | 0.53 | 0.80 | 0.53 | 34.9 |
| 6 | T1 | 5 | 1.0 | 0.306 | 6.2 | LOS A | 1.2 | 30.2 | 0.53 | 0.80 | 0.53 | 34.7 |
| 16 | R2 | 80 | 1.0 | 0.306 | 6.1 | LOS A | 1.2 | 30.2 | 0.53 | 0.80 | 0.53 | 33.7 |
| Approach | | 255 | 1.0 | 0.306 | 10.1 | LOS B | 1.2 | 30.2 | 0.53 | 0.80 | 0.53 | 34.5 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 110 | 1.0 | 0.431 | 10.8 | LOS B | 2.9 | 73.8 | 0.45 | 0.53 | 0.45 | 36.1 |
| 4 | T1 | 1000 | 1.0 | 0.431 | 4.9 | LOS A | 3.0 | 75.4 | 0.44 | 0.49 | 0.44 | 36.3 |
| 14 | R2 | 5 | 1.0 | 0.431 | 5.0 | LOS A | 3.0 | 75.4 | 0.44 | 0.46 | 0.44 | 35.2 |
| Approach | | 1115 | 1.0 | 0.431 | 5.5 | LOS A | 3.0 | 75.4 | 0.45 | 0.49 | 0.45 | 36.3 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 35 | 0.0 | 0.103 | 13.1 | LOS B | 0.4 | 9.6 | 0.62 | 0.83 | 0.62 | 34.7 |
| 2 | T1 | 15 | 0.0 | 0.103 | 7.2 | LOS A | 0.4 | 9.6 | 0.62 | 0.83 | 0.62 | 34.5 |
| 12 | R2 | 15 | 0.0 | 0.103 | 7.2 | LOS A | 0.4 | 9.6 | 0.62 | 0.83 | 0.62 | 33.6 |
| Approach | | 65 | 0.0 | 0.103 | 10.4 | LOS B | 0.4 | 9.6 | 0.62 | 0.83 | 0.62 | 34.4 |
| All Vehicles | | 2150 | 1.3 | 0.431 | 5.9 | LOS A | 3.0 | 75.4 | 0.43 | 0.53 | 0.43 | 36.1 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [AM 2040 Old Hwy 99-79th Ave - Land Use 2]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout



# MOVEMENT SUMMARY

## Site: 2 [PM 2025 Old Hwy 99-79th Ave - Baseline]

Projected 2025
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

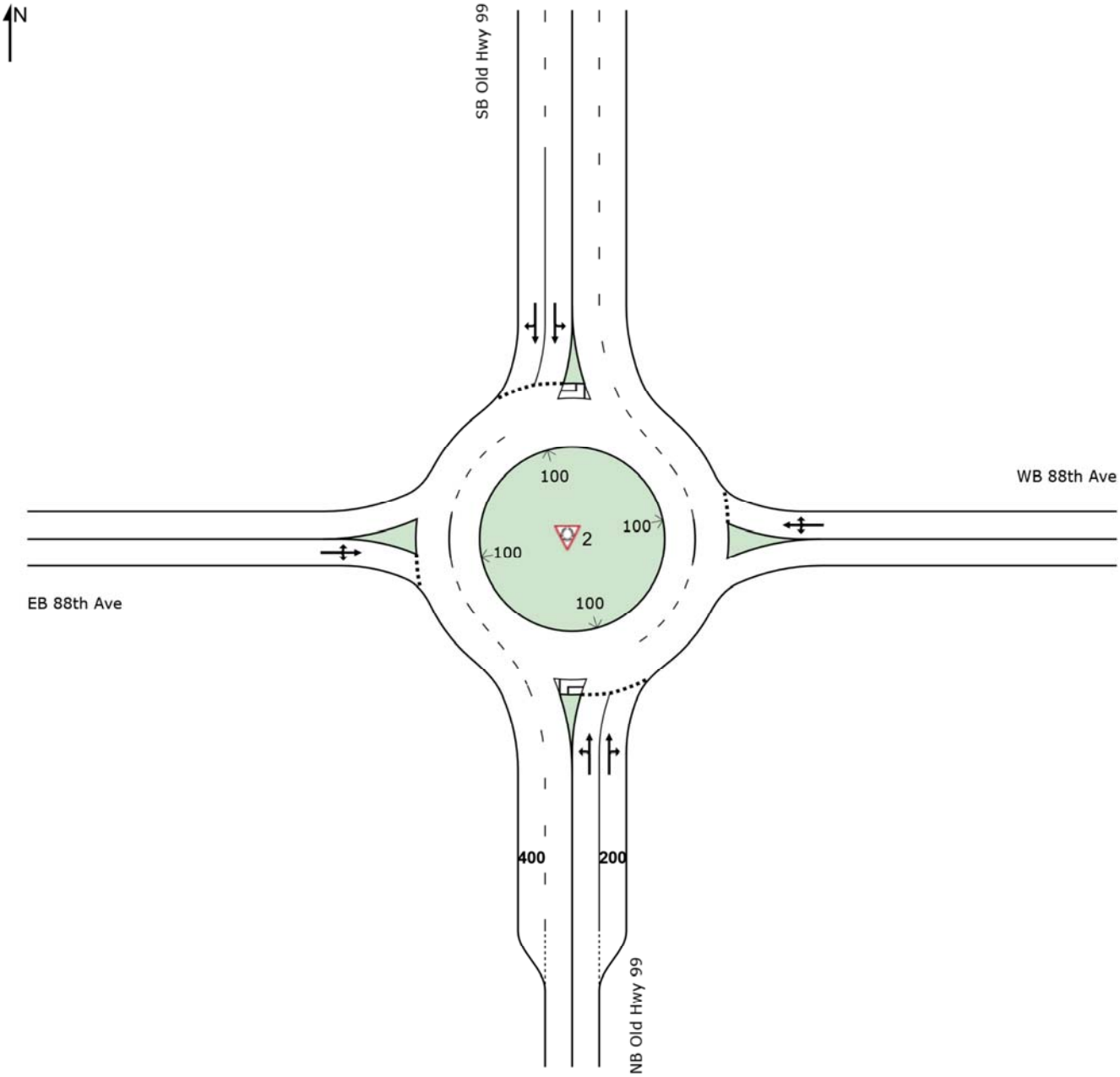
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.209 | 10.4 | LOS B | 1.0 | 26.2 | 0.29 | 0.43 | 0.29 | 37.1 |
| 8 | T1 | 535 | 3.0 | 0.209 | 4.5 | LOS A | 1.0 | 26.5 | 0.28 | 0.43 | 0.28 | 37.1 |
| 18 | R2 | 15 | 3.0 | 0.209 | 4.6 | LOS A | 1.0 | 26.5 | 0.28 | 0.42 | 0.28 | 35.8 |
| Approach | | 555 | 3.0 | 0.209 | 4.6 | LOS A | 1.0 | 26.5 | 0.28 | 0.43 | 0.28 | 37.0 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 20 | 2.0 | 0.180 | 11.6 | LOS B | 0.6 | 15.9 | 0.45 | 0.68 | 0.45 | 36.6 |
| 6 | T1 | 1 | 2.0 | 0.180 | 5.7 | LOS A | 0.6 | 15.9 | 0.45 | 0.68 | 0.45 | 36.5 |
| 16 | R2 | 135 | 2.0 | 0.180 | 5.6 | LOS A | 0.6 | 15.9 | 0.45 | 0.68 | 0.45 | 35.4 |
| Approach | | 156 | 2.0 | 0.180 | 6.4 | LOS A | 0.6 | 15.9 | 0.45 | 0.68 | 0.45 | 35.6 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 125 | 1.0 | 0.402 | 9.9 | LOS A | 2.7 | 68.5 | 0.16 | 0.44 | 0.16 | 37.0 |
| 4 | T1 | 1050 | 1.0 | 0.402 | 4.1 | LOS A | 2.7 | 68.7 | 0.15 | 0.40 | 0.15 | 37.3 |
| 14 | R2 | 5 | 1.0 | 0.402 | 4.2 | LOS A | 2.7 | 68.7 | 0.15 | 0.37 | 0.15 | 36.3 |
| Approach | | 1180 | 1.0 | 0.402 | 4.7 | LOS A | 2.7 | 68.7 | 0.15 | 0.40 | 0.15 | 37.3 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.020 | 12.5 | LOS B | 0.1 | 1.6 | 0.52 | 0.70 | 0.52 | 35.6 |
| 2 | T1 | 5 | 0.0 | 0.020 | 6.6 | LOS A | 0.1 | 1.6 | 0.52 | 0.70 | 0.52 | 35.4 |
| 12 | R2 | 5 | 0.0 | 0.020 | 6.6 | LOS A | 0.1 | 1.6 | 0.52 | 0.70 | 0.52 | 34.4 |
| Approach | | 15 | 0.0 | 0.020 | 8.6 | LOS A | 0.1 | 1.6 | 0.52 | 0.70 | 0.52 | 35.1 |
| All Vehicles | | 1906 | 1.7 | 0.402 | 4.8 | LOS A | 2.7 | 68.7 | 0.22 | 0.44 | 0.22 | 37.1 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [PM 2040 Old Hwy 99-88th Ave - Land Use 2]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**

# MOVEMENT SUMMARY

## Site: 2 [PM 2025 Old Hwy 99-88th Ave - Baseline]

Projected 2025
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

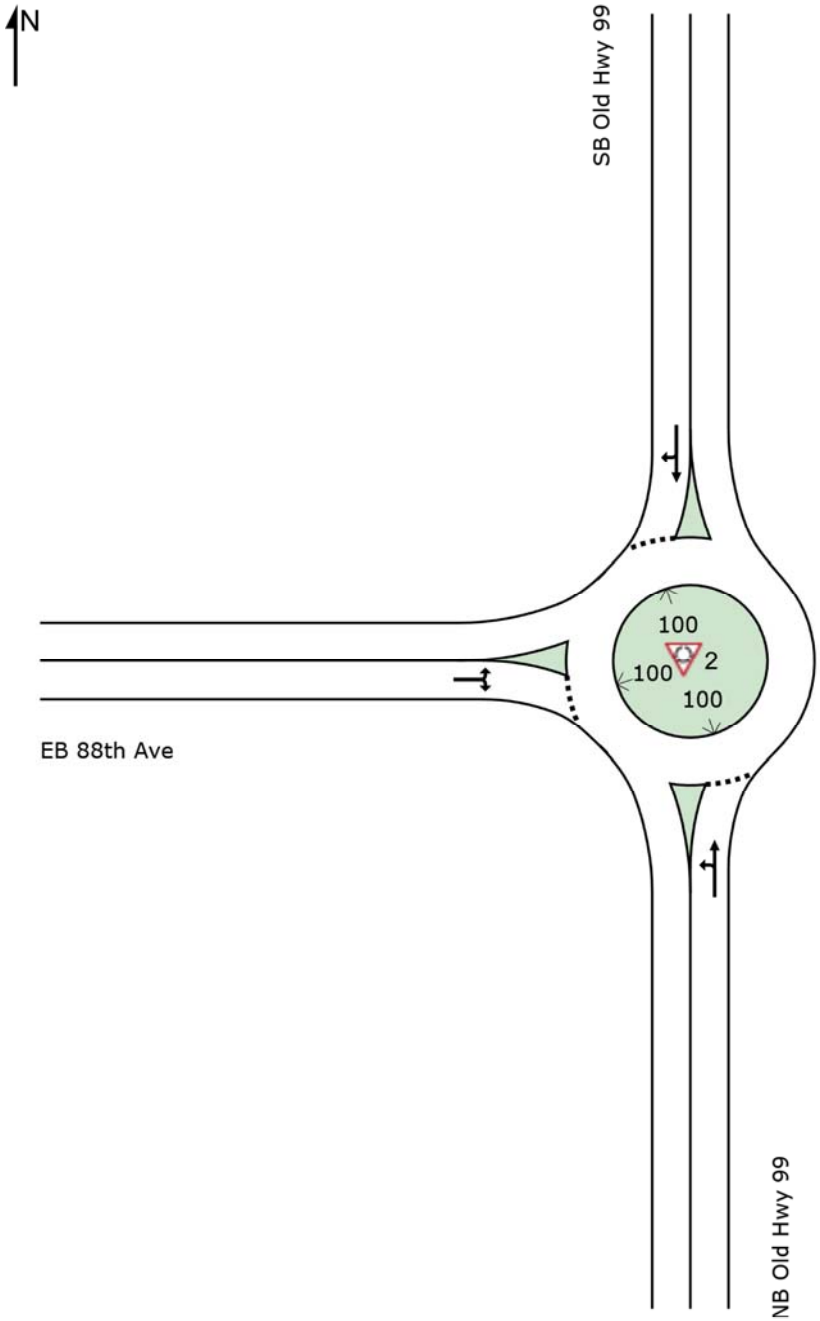
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 15 | 1.0 | 0.138 | 10.5 | LOS B | 0.7 | 18.2 | 0.36 | 0.47 | 0.36 | 36.7 |
| 8 | T1 | 340 | 1.0 | 0.138 | 4.6 | LOS A | 0.7 | 18.6 | 0.35 | 0.45 | 0.35 | 36.7 |
| 18 | R2 | 1 | 1.0 | 0.138 | 4.7 | LOS A | 0.7 | 18.6 | 0.35 | 0.44 | 0.35 | 35.6 |
| Approach | | 356 | 1.0 | 0.138 | 4.9 | LOS A | 0.7 | 18.6 | 0.35 | 0.45 | 0.35 | 36.7 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 1 | 0.0 | 0.008 | 11.2 | LOS B | 0.0 | 0.6 | 0.40 | 0.53 | 0.40 | 36.5 |
| 6 | T1 | 5 | 0.0 | 0.008 | 5.4 | LOS A | 0.0 | 0.6 | 0.40 | 0.53 | 0.40 | 36.3 |
| 16 | R2 | 1 | 0.0 | 0.008 | 5.3 | LOS A | 0.0 | 0.6 | 0.40 | 0.53 | 0.40 | 35.3 |
| Approach | | 7 | 0.0 | 0.008 | 6.2 | LOS A | 0.0 | 0.6 | 0.40 | 0.53 | 0.40 | 36.2 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 1 | 1.0 | 0.418 | 9.9 | LOS A | 2.8 | 70.3 | 0.13 | 0.37 | 0.13 | 37.8 |
| 4 | T1 | 850 | 1.0 | 0.418 | 4.0 | LOS A | 2.8 | 70.3 | 0.13 | 0.38 | 0.13 | 37.7 |
| 14 | R2 | 250 | 1.0 | 0.336 | 4.2 | LOS A | 2.0 | 50.7 | 0.12 | 0.42 | 0.12 | 36.4 |
| Approach | | 1101 | 1.0 | 0.418 | 4.1 | LOS A | 2.8 | 70.3 | 0.13 | 0.39 | 0.13 | 37.4 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 185 | 2.0 | 0.307 | 13.1 | LOS B | 1.2 | 31.3 | 0.58 | 0.85 | 0.58 | 34.0 |
| 2 | T1 | 1 | 2.0 | 0.307 | 7.2 | LOS A | 1.2 | 31.3 | 0.58 | 0.85 | 0.58 | 33.9 |
| 12 | R2 | 50 | 2.0 | 0.307 | 7.2 | LOS A | 1.2 | 31.3 | 0.58 | 0.85 | 0.58 | 33.0 |
| Approach | | 236 | 2.0 | 0.307 | 11.8 | LOS B | 1.2 | 31.3 | 0.58 | 0.85 | 0.58 | 33.8 |
| All Vehicles | | 1700 | 1.1 | 0.418 | 5.3 | LOS A | 2.8 | 70.3 | 0.24 | 0.46 | 0.24 | 36.7 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [PM 2025 Old Hwy 99-93rd Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout



# MOVEMENT SUMMARY

## Site: 2 [PM 2025 Old Hwy 99-93rd Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 126 | 2.0 | 0.291 | 9.9 | LOS A | 2.0 | 49.8 | 0.14 | 0.47 | 0.14 | 36.8 |
| 8 | T1 | 284 | 2.0 | 0.291 | 3.9 | LOS A | 2.0 | 49.8 | 0.14 | 0.47 | 0.14 | 36.7 |
| Approach | | 411 | 2.0 | 0.291 | 5.7 | LOS A | 2.0 | 49.8 | 0.14 | 0.47 | 0.14 | 36.7 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 816 | 1.0 | 0.633 | 4.8 | LOS A | 5.4 | 135.3 | 0.46 | 0.48 | 0.46 | 36.5 |
| 14 | R2 | 26 | 1.0 | 0.633 | 4.9 | LOS A | 5.4 | 135.3 | 0.46 | 0.48 | 0.46 | 35.4 |
| Approach | | 842 | 1.0 | 0.633 | 4.8 | LOS A | 5.4 | 135.3 | 0.46 | 0.48 | 0.46 | 36.5 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 21 | 1.0 | 0.265 | 14.5 | LOS B | 1.8 | 44.7 | 0.80 | 0.82 | 0.80 | 35.1 |
| 12 | R2 | 179 | 1.0 | 0.265 | 8.6 | LOS A | 1.8 | 44.7 | 0.80 | 0.82 | 0.80 | 33.9 |
| Approach | | 200 | 1.0 | 0.265 | 9.2 | LOS A | 1.8 | 44.7 | 0.80 | 0.82 | 0.80 | 34.1 |
| All Vehicles | | 1453 | 1.3 | 0.633 | 5.7 | LOS A | 5.4 | 135.3 | 0.42 | 0.52 | 0.42 | 36.2 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Future Volume (vph) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% | 1% | 1% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 19.5 | 106.5 | 106.5 | 87.0 | 87.0 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 13.9% | 76.1% | 76.1% | 62.1% | 62.1% | | 23.9% | 23.9% | | 23.9% | 23.9% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 140 | |
| Actuated Cycle Length: 135.4 | |
| Natural Cycle: 140 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Future Volume (veh/h) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| 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 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 184 | 1394 | 1181 | 76 | 913 | 171 | 138 | 52 | 40 | 278 | 12 | 275 |
| Arrive On Green | 0.10 | 0.74 | 0.74 | 0.60 | 0.60 | 0.60 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Sat Flow, veh/h | 1795 | 1885 | 1598 | 395 | 1531 | 288 | 538 | 292 | 226 | 1391 | 70 | 1538 |
| Grp Volume(v), veh/h | 160 | 1365 | 10 | 5 | 0 | 980 | 70 | 0 | 0 | 205 | 0 | 115 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1885 | 1598 | 395 | 0 | 1819 | 1055 | 0 | 0 | 1391 | 0 | 1608 |
| Q Serve(g_s), s | 11.8 | 91.8 | 0.2 | 1.6 | 0.0 | 63.4 | 4.0 | 0.0 | 0.0 | 9.2 | 0.0 | 8.5 |
| Cycle Q Clear(g_c), s | 11.8 | 91.8 | 0.2 | 74.2 | 0.0 | 63.4 | 12.5 | 0.0 | 0.0 | 21.8 | 0.0 | 8.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.16 | 0.57 | | 0.21 | 1.00 | | 0.96 |
| Lane Grp Cap(c), veh/h | 184 | 1394 | 1181 | 76 | 0 | 1084 | 231 | 0 | 0 | 278 | 0 | 287 |
| V/C Ratio(X) | 0.87 | 0.98 | 0.01 | 0.07 | 0.00 | 0.90 | 0.30 | 0.00 | 0.00 | 0.74 | 0.00 | 0.40 |
| Avail Cap(c_a), veh/h | 187 | 1418 | 1201 | 80 | 0 | 1104 | 274 | 0 | 0 | 320 | 0 | 335 |
| 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 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 59.4 | 16.5 | 4.6 | 60.6 | 0.0 | 23.8 | 51.5 | 0.0 | 0.0 | 54.8 | 0.0 | 48.8 |
| Incr Delay (d2), s/veh | 31.2 | 18.9 | 0.0 | 0.4 | 0.0 | 10.4 | 0.3 | 0.0 | 0.0 | 5.8 | 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 | 6.8 | 36.7 | 0.1 | 0.2 | 0.0 | 27.1 | 2.2 | 0.0 | 0.0 | 7.3 | 0.0 | 3.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 90.6 | 35.4 | 4.6 | 61.0 | 0.0 | 34.2 | 51.8 | 0.0 | 0.0 | 60.6 | 0.0 | 49.1 |
| LnGrp LOS | F | D | A | E | A | C | D | A | A | E | A | D |
| Approach Vol, veh/h | | 1535 | | | 985 | | | 70 | | | 320 | |
| Approach Delay, s/veh | | 41.0 | | | 34.3 | | | 51.8 | | | 56.5 | |
| Approach LOS | | D | | | C | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 19.3 | 85.6 | | 29.5 | | 104.8 | | 29.5 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 14.0 | 81.5 | | 28.0 | | 101.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 13.8 | 76.2 | | 14.5 | | 93.8 | | 23.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.0 | | 0.1 | | 5.5 | | 0.2 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 40.7 | |
| HCM 6th LOS | | D | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 51.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |
| Future Vol, veh/h | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |

| Major/Minor | Minor1 | | | Minor2 | | | | Major1 | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 2599 | 2526 | 813 | 2529 | 2533 | 1451 | 1451 | 0 | 0 | 820 | 0 | 0 |
| Stage 1 | 815 | 815 | - | 1711 | 1711 | - | - | - | - | - | - | - |
| Stage 2 | 1784 | 1711 | - | 818 | 822 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.12 | 6.52 | 6.22 | 4.11 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.518 | 4.018 | 3.318 | 2.209 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 17 | 28 | 382 | ~ 19 | 27 | 160 | 470 | - | - | 805 | - | - |
| Stage 1 | 374 | 394 | - | 115 | 146 | - | - | - | - | - | - | - |
| Stage 2 | 105 | 147 | - | 370 | 388 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 0 | 5 | 382 | ~ 5 | 5 | 160 | 470 | - | - | 805 | - | - |
| Mov Cap-2 Maneuver | 0 | 5 | - | ~ 5 | 5 | - | - | - | - | - | - | - |
| Stage 1 | 373 | 393 | - | 115 | 24 | - | - | - | - | - | - | - |
| Stage 2 | 2 | 25 | - | 363 | 387 | - | - | - | - | - | - | - |

| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 178.7 | $ 743.6 | 0 | 0.8 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 805 | - | - | 28 | 5 | 160 | 470 | - | - |
| HCM Lane V/C Ratio | 0.161 | - | - | 0.286 | 6.2 | 0.906 | 0.002 | - | - |
| HCM Control Delay (s) | 10.3 | 0 | - | 178.3 | $ 3732.9 | 104.5 | 12.7 | - | - |
| HCM Lane LOS | B | A | - | F | F | F | B | - | - |
| HCM 95th %tile Q(veh) | 0.6 | - | - | 0.9 | 5.4 | 6.5 | 0 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Future Volume (vph) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 1410 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 19.2 | | | 26.4 | | | 6.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Total Split (%) | 71.1% | 71.1% | 71.1% | 71.1% | 71.1% | | 28.9% | 28.9% | | 28.9% | 28.9% | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 82.1 | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Future Volume (veh/h) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 638 | 1259 | 1067 | 169 | 1256 | 3 | 370 | 5 | 293 | 113 | 195 | 81 |
| Arrive On Green | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| Sat Flow, veh/h | 947 | 1885 | 1598 | 344 | 1880 | 4 | 1414 | 26 | 1563 | 253 | 1040 | 431 |
| Grp Volume(v), veh/h | 1 | 1115 | 410 | 20 | 0 | 451 | 220 | 0 | 61 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 947 | 1885 | 1598 | 344 | 0 | 1884 | 1414 | 0 | 1589 | 1723 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 33.2 | 7.9 | 3.5 | 0.0 | 7.2 | 10.2 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 7.2 | 33.2 | 7.9 | 36.6 | 0.0 | 7.2 | 10.3 | 0.0 | 2.2 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.98 | 0.25 | | 0.25 |
| Lane Grp Cap(c), veh/h | 638 | 1259 | 1067 | 169 | 0 | 1258 | 370 | 0 | 298 | 388 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.89 | 0.38 | 0.12 | 0.00 | 0.36 | 0.59 | 0.00 | 0.20 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 802 | 1585 | 1343 | 228 | 0 | 1585 | 556 | 0 | 507 | 607 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 6.6 | 9.3 | 5.1 | 24.2 | 0.0 | 5.0 | 26.9 | 0.0 | 23.7 | 22.8 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 5.4 | 0.2 | 0.3 | 0.0 | 0.2 | 1.5 | 0.0 | 0.3 | 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 | 9.0 | 1.5 | 0.3 | 0.0 | 1.6 | 3.5 | 0.0 | 0.8 | 0.1 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 6.6 | 14.7 | 5.3 | 24.5 | 0.0 | 5.2 | 28.5 | 0.0 | 24.0 | 22.8 | 0.0 | 0.0 |
| LnGrp LOS | A | B | A | C | A | A | C | A | C | C | A | A |
| Approach Vol, veh/h | | 1526 | | | 471 | | | 281 | | | 4 | |
| Approach Delay, s/veh | | 12.2 | | | 6.0 | | | 27.5 | | | 22.8 | |
| Approach LOS | | B | | | A | | | C | | | C | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 52.1 | | 16.9 | | 52.1 | | 16.9 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 58.0 | | 22.0 | | 58.0 | | 22.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 38.6 | | 12.3 | | 35.2 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 2.7 | | 0.7 | | 10.9 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 12.8 | | | | | | | | | |
| HCM 6th LOS | | | B | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1025 | 30 | 175 | 375 | 20 | 185 |
| Future Vol, veh/h | 1025 | 30 | 175 | 375 | 20 | 185 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 1 | 1 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 1025 | 30 | 175 | 375 | 20 | 185 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 1055 | 0 | 1750 | 1025 |
| Stage 1 | - | - | - | - | 1025 | - |
| Stage 2 | - | - | - | - | 725 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | - | - | 660 | - | 95 | 287 |
| Stage 1 | - | - | - | - | 348 | - |
| Stage 2 | - | - | - | - | 481 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 660 | - | 70 | 287 |
| Mov Cap-2 Maneuver | - | - | - | - | 244 | - |
| Stage 1 | - | - | - | - | 348 | - |
| Stage 2 | - | - | - | - | 354 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 3.9 | 36.1 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 244 | 287 | - | - | 660 | - |
| HCM Lane V/C Ratio | 0.082 | 0.645 | - | - | 0.265 | - |
| HCM Control Delay (s) | 21.1 | 37.7 | - | - | 12.4 | - |
| HCM Lane LOS | C | E | - | - | B | - |
| HCM 95th %tile Q(veh) | 0.3 | 4.1 | - | - | 1.1 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Future Volume (vph) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 175 | | 50 | 50 | | 0 | 0 | | 0 | 150 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 0 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 40 | | | 40 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1810 | | | 1652 | | | 415 | | | 1137 | |
| Travel Time (s) | | 24.7 | | | 22.5 | | | 9.4 | | | 25.8 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% | 1% | 1% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Turn Type | Prot | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 1 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 10.5 | 25.5 | 25.5 | 26.5 | 26.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (s) | 15.0 | 46.5 | 46.5 | 31.5 | 31.5 | | 33.5 | 33.5 | | 33.5 | 33.5 | |
| Total Split (%) | 18.8% | 58.1% | 58.1% | 39.4% | 39.4% | | 41.9% | 41.9% | | 41.9% | 41.9% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lead | | | Lag | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | | | | | | | |
| Recall Mode | None | Min | Min | Min | Min | | None | None | | None | None | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 80 | |
| Actuated Cycle Length: 62.3 | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 1: Old Hwy 99 & Henderson Blvd

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Future Volume (veh/h) | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| 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 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 160 | 1365 | 10 | 5 | 825 | 155 | 40 | 15 | 15 | 205 | 5 | 110 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 205 | 2158 | 963 | 290 | 1119 | 210 | 205 | 76 | 45 | 413 | 12 | 262 |
| Arrive On Green | 0.11 | 0.60 | 0.60 | 0.37 | 0.37 | 0.37 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| Sat Flow, veh/h | 1795 | 3582 | 1598 | 395 | 2985 | 561 | 520 | 449 | 264 | 1391 | 70 | 1538 |
| Grp Volume(v), veh/h | 160 | 1365 | 10 | 5 | 491 | 489 | 70 | 0 | 0 | 205 | 0 | 115 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1791 | 1598 | 395 | 1777 | 1769 | 1233 | 0 | 0 | 1391 | 0 | 1608 |
| Q Serve(g_s), s | 4.2 | 11.8 | 0.1 | 0.4 | 11.6 | 11.6 | 0.3 | 0.0 | 0.0 | 2.4 | 0.0 | 3.1 |
| Cycle Q Clear(g_c), s | 4.2 | 11.8 | 0.1 | 1.2 | 11.6 | 11.6 | 3.4 | 0.0 | 0.0 | 5.8 | 0.0 | 3.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.32 | 0.57 | | 0.21 | 1.00 | | 0.96 |
| Lane Grp Cap(c), veh/h | 205 | 2158 | 963 | 290 | 666 | 663 | 327 | 0 | 0 | 413 | 0 | 274 |
| V/C Ratio(X) | 0.78 | 0.63 | 0.01 | 0.02 | 0.74 | 0.74 | 0.21 | 0.00 | 0.00 | 0.50 | 0.00 | 0.42 |
| Avail Cap(c_a), veh/h | 353 | 3035 | 1354 | 354 | 955 | 951 | 922 | 0 | 0 | 982 | 0 | 931 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 20.8 | 6.2 | 3.8 | 10.1 | 13.1 | 13.1 | 17.5 | 0.0 | 0.0 | 18.9 | 0.0 | 17.9 |
| Incr Delay (d2), s/veh | 2.4 | 0.3 | 0.0 | 0.0 | 1.8 | 1.8 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 1.8 | 0.0 | 0.0 | 3.5 | 3.5 | 0.6 | 0.0 | 0.0 | 2.0 | 0.0 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 23.3 | 6.5 | 3.8 | 10.1 | 14.9 | 14.9 | 17.6 | 0.0 | 0.0 | 19.2 | 0.0 | 18.3 |
| LnGrp LOS | C | A | A | B | B | B | B | A | A | B | A | B |
| Approach Vol, veh/h | | 1535 | | | 985 | | | 70 | | | 320 | |
| Approach Delay, s/veh | | 8.2 | | | 14.8 | | | 17.6 | | | 18.9 | |
| Approach LOS | | A | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.0 | 23.6 | | 13.7 | | 34.7 | | 13.7 | | | | |
| Change Period (Y+Rc), s | 5.5 | 5.5 | | 5.5 | | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 9.5 | 26.0 | | 28.0 | | 41.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 6.2 | 13.6 | | 5.4 | | 13.8 | | 7.8 | | | | |
| Green Ext Time (p_c), s | 0.1 | 4.6 | | 0.2 | | 10.7 | | 0.5 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 11.9 | |
| HCM 6th LOS | | B | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 35.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SEL | SET | SER | NWL | NWT | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |
| Future Vol, veh/h | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 300 | 275 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 1 | 5 | 30 | 1 | 145 | 1 | 805 | 15 | 130 | 1450 | 1 |

| Major/Minor | Minor1 | | | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1801 | 2526 | 410 | 2116 | 2533 | 726 | 1451 | 0 | 0 | 820 | 0 | 0 |
| Stage 1 | 815 | 815 | - | 1711 | 1711 | - | - | - | - | - | - | - |
| Stage 2 | 986 | 1711 | - | 405 | 822 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.5 | 6.5 | 6.9 | 7.54 | 6.54 | 6.94 | 4.12 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.5 | 5.5 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.5 | 5.5 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.52 | 4.02 | 3.32 | 2.21 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 51 | 28 | 596 | ~ 29 | 27 | 367 | 468 | - | - | 798 | - | - |
| Stage 1 | 342 | 394 | - | 94 | 144 | - | - | - | - | - | - | - |
| Stage 2 | 270 | 147 | - | 593 | 386 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 8 | 4 | 596 | ~ 7 | 4 | 367 | 468 | - | - | 798 | - | - |
| Mov Cap-2 Maneuver | 8 | 4 | - | ~ 7 | 4 | - | - | - | - | - | - | - |
| Stage 1 | 341 | 393 | - | 94 | 23 | - | - | - | - | - | - | - |
| Stage 2 | 25 | 23 | - | 585 | 385 | - | - | - | - | - | - | - |

| Approach | EB | WB | SE | NW |
|---|---|---|---|---|
| HCM Control Delay, s | $ 369.1 | $ 468.9 | 0 | 4.2 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NWL | NWT | NWR | EBLn1 | WBLn1 | WBLn2 | SEL | SET | SER |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 798 | - | - | 16 | 7 | 367 | 468 | - | - |
| HCM Lane V/C Ratio | 0.163 | - | - | 0.5 | 4.429 | 0.395 | 0.002 | - | - |
| HCM Control Delay (s) | 10.4 | 3.7 | - | $ 369.9 | $ 2563.5 | 21.1 | 12.7 | - | - |
| HCM Lane LOS | B | A | - | F | F | C | B | - | - |
| HCM 95th %tile Q(veh) | 0.6 | - | - | 1.3 | 5.2 | 1.8 | 0 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Future Volume (vph) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 125 | | 150 | 150 | | 0 | 150 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (mph) | | 50 | | | 50 | | | 30 | | | 30 | |
| Link Distance (ft) | | 3851 | | | 497 | | | 1160 | | | 265 | |
| Travel Time (s) | | 52.5 | | | 6.8 | | | 26.4 | | | 6.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | | 24.0 | 24.0 | | 26.0 | 26.0 | |
| Total Split (s) | 58.0 | 58.0 | 58.0 | 58.0 | 58.0 | | 32.0 | 32.0 | | 32.0 | 32.0 | |
| Total Split (%) | 64.4% | 64.4% | 64.4% | 64.4% | 64.4% | | 35.6% | 35.6% | | 35.6% | 35.6% | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Min | | None | None | | None | None | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 90 | |
| Actuated Cycle Length: 60.1 | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Uncoordinated | |

Splits and Phases: 3: 88th Ave & Old Hwy 99

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Future Volume (veh/h) | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 1115 | 410 | 20 | 450 | 1 | 220 | 1 | 60 | 1 | 2 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 637 | 1774 | 884 | 281 | 2029 | 5 | 466 | 5 | 324 | 151 | 227 | 90 |
| Arrive On Green | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| Sat Flow, veh/h | 947 | 3205 | 1598 | 344 | 3666 | 8 | 1414 | 26 | 1563 | 211 | 1093 | 435 |
| Grp Volume(v), veh/h | 1 | 1115 | 410 | 20 | 220 | 231 | 220 | 0 | 61 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 947 | 1602 | 1598 | 344 | 1791 | 1884 | 1414 | 0 | 1589 | 1739 | 0 | 0 |
| Q Serve(g_s), s | 0.0 | 10.0 | 6.4 | 1.8 | 2.6 | 2.6 | 6.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 2.6 | 10.0 | 6.4 | 11.7 | 2.6 | 2.6 | 6.1 | 0.0 | 1.3 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | 0.98 | 0.25 | | 0.25 |
| Lane Grp Cap(c), veh/h | 637 | 1774 | 884 | 281 | 991 | 1043 | 466 | 0 | 330 | 468 | 0 | 0 |
| V/C Ratio(X) | 0.00 | 0.63 | 0.46 | 0.07 | 0.22 | 0.22 | 0.47 | 0.00 | 0.19 | 0.01 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 1290 | 3983 | 1985 | 518 | 2226 | 2341 | 1119 | 0 | 1063 | 1235 | 0 | 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) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 5.4 | 6.4 | 5.6 | 10.4 | 4.8 | 4.8 | 15.5 | 0.0 | 13.7 | 13.2 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.7 | 0.0 | 0.3 | 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 | 1.3 | 0.9 | 0.1 | 0.4 | 0.4 | 1.7 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 5.4 | 6.8 | 6.0 | 10.5 | 4.9 | 4.9 | 16.3 | 0.0 | 13.9 | 13.2 | 0.0 | 0.0 |
| LnGrp LOS | A | A | A | B | A | A | B | A | B | B | A | A |
| Approach Vol, veh/h | | 1526 | | | 471 | | | 281 | | | 4 | |
| Approach Delay, s/veh | | 6.6 | | | 5.1 | | | 15.8 | | | 13.2 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 29.2 | | 12.7 | | 29.2 | | 12.7 | | | | |
| Change Period (Y+Rc), s | | 6.0 | | 4.0 | | 6.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 52.0 | | 28.0 | | 52.0 | | 28.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 13.7 | | 8.1 | | 12.0 | | 2.1 | | | | |
| Green Ext Time (p_c), s | | 2.8 | | 0.9 | | 11.2 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 7.4 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

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

| Movement | EBT | EBR | WBL | WBT | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1025 | 30 | 175 | 375 | 20 | 185 |
| Future Vol, veh/h | 1025 | 30 | 175 | 375 | 20 | 185 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | 450 | 300 | - | 300 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 2 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 1 | 1 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 1025 | 30 | 175 | 375 | 20 | 185 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 1055 | 0 | 1750 | 1025 |
| Stage 1 | - | - | - | - | 1025 | - |
| Stage 2 | - | - | - | - | 725 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | - | - | 660 | - | 95 | 287 |
| Stage 1 | - | - | - | - | 348 | - |
| Stage 2 | - | - | - | - | 481 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 660 | - | 70 | 287 |
| Mov Cap-2 Maneuver | - | - | - | - | 244 | - |
| Stage 1 | - | - | - | - | 348 | - |
| Stage 2 | - | - | - | - | 354 | - |

| Approach | EB | WB | NE |
|---|---|---|---|
| HCM Control Delay, s | 0 | 3.9 | 36.1 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | NELn1 | NELn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 244 | 287 | - | - | 660 | - |
| HCM Lane V/C Ratio | 0.082 | 0.645 | - | - | 0.265 | - |
| HCM Control Delay (s) | 21.1 | 37.7 | - | - | 12.4 | - |
| HCM Lane LOS | C | E | - | - | B | - |
| HCM 95th %tile Q(veh) | 0.3 | 4.1 | - | - | 1.1 | - |

# MOVEMENT SUMMARY

## Site: 1 [PM 2040 Old Hwy 99-Henderson Blvd - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 2.0 | 0.361 | 10.8 | LOS B | 2.2 | 56.8 | 0.44 | 0.48 | 0.44 | 36.5 |
| 8 | T1 | 825 | 2.0 | 0.361 | 4.9 | LOS A | 2.3 | 59.0 | 0.43 | 0.48 | 0.43 | 36.5 |
| 18 | R2 | 155 | 2.0 | 0.361 | 4.9 | LOS A | 2.3 | 59.0 | 0.42 | 0.48 | 0.42 | 35.4 |
| Approach | | 985 | 2.0 | 0.361 | 4.9 | LOS A | 2.3 | 59.0 | 0.43 | 0.48 | 0.43 | 36.4 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 205 | 1.0 | 0.372 | 12.4 | LOS B | 1.7 | 41.8 | 0.61 | 0.85 | 0.64 | 34.7 |
| 6 | T1 | 5 | 1.0 | 0.372 | 6.5 | LOS A | 1.7 | 41.8 | 0.61 | 0.85 | 0.64 | 34.6 |
| 16 | R2 | 110 | 1.0 | 0.372 | 6.5 | LOS A | 1.7 | 41.8 | 0.61 | 0.85 | 0.64 | 33.6 |
| Approach | | 320 | 1.0 | 0.372 | 10.3 | LOS B | 1.7 | 41.8 | 0.61 | 0.85 | 0.64 | 34.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 160 | 1.0 | 0.562 | 11.1 | LOS B | 4.6 | 115.0 | 0.57 | 0.56 | 0.57 | 35.7 |
| 4 | T1 | 1365 | 1.0 | 0.562 | 5.1 | LOS A | 4.7 | 119.5 | 0.55 | 0.51 | 0.55 | 35.9 |
| 14 | R2 | 10 | 1.0 | 0.562 | 5.2 | LOS A | 4.7 | 119.5 | 0.54 | 0.48 | 0.54 | 34.9 |
| Approach | | 1535 | 1.0 | 0.562 | 5.7 | LOS A | 4.7 | 119.5 | 0.56 | 0.52 | 0.56 | 35.9 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 40 | 0.0 | 0.118 | 13.8 | LOS B | 0.5 | 12.8 | 0.72 | 0.87 | 0.72 | 34.2 |
| 2 | T1 | 15 | 0.0 | 0.118 | 7.9 | LOS A | 0.5 | 12.8 | 0.72 | 0.87 | 0.72 | 34.1 |
| 12 | R2 | 15 | 0.0 | 0.118 | 7.9 | LOS A | 0.5 | 12.8 | 0.72 | 0.87 | 0.72 | 33.1 |
| Approach | | 70 | 0.0 | 0.118 | 11.3 | LOS B | 0.5 | 12.8 | 0.72 | 0.87 | 0.72 | 34.0 |
| All Vehicles | | 2910 | 1.3 | 0.562 | 6.1 | LOS A | 4.7 | 119.5 | 0.52 | 0.55 | 0.53 | 35.8 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [PM 2040 Old Hwy 99-79th Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.288 | 10.4 | LOS B | 1.6 | 40.1 | 0.32 | 0.44 | 0.32 | 37.0 |
| 8 | T1 | 805 | 3.0 | 0.288 | 4.5 | LOS A | 1.6 | 40.8 | 0.31 | 0.43 | 0.31 | 37.0 |
| 18 | R2 | 15 | 3.0 | 0.288 | 4.6 | LOS A | 1.6 | 40.8 | 0.30 | 0.42 | 0.30 | 35.7 |
| Approach | | 825 | 3.0 | 0.288 | 4.5 | LOS A | 1.6 | 40.8 | 0.30 | 0.43 | 0.30 | 36.9 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 30 | 2.0 | 0.197 | 11.8 | LOS B | 0.7 | 18.3 | 0.52 | 0.72 | 0.52 | 36.3 |
| 6 | T1 | 1 | 2.0 | 0.197 | 6.0 | LOS A | 0.7 | 18.3 | 0.52 | 0.72 | 0.52 | 36.2 |
| 16 | R2 | 145 | 2.0 | 0.197 | 5.9 | LOS A | 0.7 | 18.3 | 0.52 | 0.72 | 0.52 | 35.1 |
| Approach | | 176 | 2.0 | 0.197 | 6.9 | LOS A | 0.7 | 18.3 | 0.52 | 0.72 | 0.52 | 35.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 130 | 1.0 | 0.507 | 10.0 | LOS B | 4.1 | 103.4 | 0.22 | 0.43 | 0.22 | 37.0 |
| 4 | T1 | 1450 | 1.0 | 0.507 | 4.1 | LOS A | 4.1 | 104.0 | 0.21 | 0.40 | 0.21 | 37.2 |
| 14 | R2 | 5 | 1.0 | 0.507 | 4.3 | LOS A | 4.1 | 104.0 | 0.20 | 0.37 | 0.20 | 36.1 |
| Approach | | 1585 | 1.0 | 0.507 | 4.6 | LOS A | 4.1 | 104.0 | 0.21 | 0.40 | 0.21 | 37.2 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.020 | 13.1 | LOS B | 0.1 | 1.9 | 0.61 | 0.73 | 0.61 | 35.2 |
| 2 | T1 | 5 | 0.0 | 0.020 | 7.2 | LOS A | 0.1 | 1.9 | 0.61 | 0.73 | 0.61 | 35.1 |
| 12 | R2 | 5 | 0.0 | 0.020 | 7.2 | LOS A | 0.1 | 1.9 | 0.61 | 0.73 | 0.61 | 34.1 |
| Approach | | 15 | 0.0 | 0.020 | 9.2 | LOS A | 0.1 | 1.9 | 0.61 | 0.73 | 0.61 | 34.8 |
| All Vehicles | | 2601 | 1.7 | 0.507 | 4.8 | LOS A | 4.1 | 104.0 | 0.26 | 0.43 | 0.26 | 36.9 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [PM 2040 Old Hwy 99-88th Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 20 | 1.0 | 0.174 | 10.6 | LOS B | 1.0 | 24.6 | 0.41 | 0.48 | 0.41 | 36.5 |
| 8 | T1 | 450 | 1.0 | 0.174 | 4.7 | LOS A | 1.0 | 25.8 | 0.40 | 0.46 | 0.40 | 36.6 |
| 18 | R2 | 1 | 1.0 | 0.174 | 4.8 | LOS A | 1.0 | 25.8 | 0.39 | 0.44 | 0.39 | 35.4 |
| Approach | | 471 | 1.0 | 0.174 | 4.9 | LOS A | 1.0 | 25.8 | 0.40 | 0.46 | 0.40 | 36.6 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 1 | 0.0 | 0.007 | 11.2 | LOS B | 0.0 | 0.6 | 0.44 | 0.54 | 0.44 | 36.4 |
| 6 | T1 | 5 | 0.0 | 0.007 | 5.4 | LOS A | 0.0 | 0.6 | 0.44 | 0.54 | 0.44 | 36.2 |
| 16 | R2 | 1 | 0.0 | 0.007 | 5.3 | LOS A | 0.0 | 0.6 | 0.44 | 0.54 | 0.44 | 35.2 |
| Approach | | 7 | 0.0 | 0.007 | 6.2 | LOS A | 0.0 | 0.6 | 0.44 | 0.54 | 0.44 | 36.1 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 1 | 1.0 | 0.538 | 9.9 | LOS A | 4.4 | 111.1 | 0.17 | 0.36 | 0.17 | 37.7 |
| 4 | T1 | 1115 | 1.0 | 0.538 | 4.1 | LOS A | 4.4 | 111.1 | 0.16 | 0.38 | 0.16 | 37.6 |
| 14 | R2 | 410 | 1.0 | 0.432 | 4.2 | LOS A | 3.0 | 75.7 | 0.16 | 0.42 | 0.16 | 36.3 |
| Approach | | 1526 | 1.0 | 0.538 | 4.1 | LOS A | 4.4 | 111.1 | 0.16 | 0.39 | 0.16 | 37.2 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 220 | 2.0 | 0.369 | 14.5 | LOS B | 1.8 | 46.7 | 0.69 | 0.91 | 0.75 | 33.3 |
| 2 | T1 | 1 | 2.0 | 0.369 | 8.7 | LOS A | 1.8 | 46.7 | 0.69 | 0.91 | 0.75 | 33.2 |
| 12 | R2 | 60 | 2.0 | 0.369 | 8.6 | LOS A | 1.8 | 46.7 | 0.69 | 0.91 | 0.75 | 32.3 |
| Approach | | 281 | 2.0 | 0.369 | 13.2 | LOS B | 1.8 | 46.7 | 0.69 | 0.91 | 0.75 | 33.1 |
| All Vehicles | | 2285 | 1.1 | 0.538 | 5.4 | LOS A | 4.4 | 111.1 | 0.28 | 0.47 | 0.28 | 36.5 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [PM 2040 Old Hwy 99-93rd Ave - Baseline]

Projected 2040
PM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 175 | 2.0 | 0.389 | 9.9 | LOS A | 3.2 | 80.4 | 0.16 | 0.47 | 0.16 | 36.7 |
| 8 | T1 | 375 | 2.0 | 0.389 | 3.9 | LOS A | 3.2 | 80.4 | 0.16 | 0.47 | 0.16 | 36.6 |
| Approach | | 550 | 2.0 | 0.389 | 5.8 | LOS A | 3.2 | 80.4 | 0.16 | 0.47 | 0.16 | 36.6 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 1025 | 1.0 | 0.820 | 7.0 | LOS A | 11.7 | 294.2 | 0.76 | 0.64 | 0.82 | 35.4 |
| 14 | R2 | 30 | 1.0 | 0.820 | 7.0 | LOS A | 11.7 | 294.2 | 0.76 | 0.64 | 0.82 | 34.4 |
| Approach | | 1055 | 1.0 | 0.820 | 7.0 | LOS A | 11.7 | 294.2 | 0.76 | 0.64 | 0.82 | 35.4 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 20 | 1.0 | 0.405 | 18.2 | LOS B | 3.3 | 83.2 | 0.99 | 0.99 | 1.05 | 33.2 |
| 12 | R2 | 185 | 1.0 | 0.405 | 12.3 | LOS B | 3.3 | 83.2 | 0.99 | 0.99 | 1.05 | 32.1 |
| Approach | | 205 | 1.0 | 0.405 | 12.9 | LOS B | 3.3 | 83.2 | 0.99 | 0.99 | 1.05 | 32.2 |
| All Vehicles | | 1810 | 1.3 | 0.820 | 7.3 | LOS A | 11.7 | 294.2 | 0.61 | 0.63 | 0.65 | 35.4 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 1 [AM 2040 Old Hwy 99-Henderson Blvd - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 5 | 3.0 | 0.687 | 10.6 | LOS B | 7.2 | 183.1 | 0.45 | 0.44 | 0.45 | 36.5 |
| 8 | T1 | 1835 | 3.0 | 0.687 | 4.6 | LOS A | 7.2 | 183.1 | 0.43 | 0.43 | 0.43 | 36.5 |
| 18 | R2 | 195 | 3.0 | 0.687 | 4.7 | LOS A | 7.1 | 182.3 | 0.41 | 0.43 | 0.41 | 35.4 |
| Approach | | 2035 | 3.0 | 0.687 | 4.7 | LOS A | 7.2 | 183.1 | 0.42 | 0.43 | 0.42 | 36.4 |
| East: WB Henderson Blvd | | | | | | | | | | | | |
| 1 | L2 | 135 | 2.0 | 0.633 | 19.1 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 32.2 |
| 6 | T1 | 5 | 2.0 | 0.633 | 13.2 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 32.1 |
| 16 | R2 | 220 | 2.0 | 0.633 | 13.1 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 31.2 |
| Approach | | 360 | 2.0 | 0.633 | 15.4 | LOS B | 4.0 | 101.0 | 0.85 | 1.06 | 1.25 | 31.6 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 70 | 5.0 | 0.265 | 10.5 | LOS B | 1.6 | 42.8 | 0.37 | 0.50 | 0.37 | 36.2 |
| 4 | T1 | 625 | 5.0 | 0.265 | 4.5 | LOS A | 1.7 | 44.6 | 0.37 | 0.46 | 0.37 | 36.5 |
| 14 | R2 | 25 | 5.0 | 0.265 | 4.6 | LOS A | 1.7 | 44.6 | 0.36 | 0.43 | 0.36 | 35.4 |
| Approach | | 720 | 5.0 | 0.265 | 5.1 | LOS A | 1.7 | 44.6 | 0.37 | 0.46 | 0.37 | 36.4 |
| West: EB Henderson Blvd | | | | | | | | | | | | |
| 5 | L2 | 5 | 0.0 | 0.017 | 11.5 | LOS B | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.9 |
| 2 | T1 | 5 | 0.0 | 0.017 | 5.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.7 |
| 12 | R2 | 5 | 0.0 | 0.017 | 5.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 34.7 |
| Approach | | 15 | 0.0 | 0.017 | 7.6 | LOS A | 0.1 | 1.4 | 0.48 | 0.63 | 0.48 | 35.4 |
| All Vehicles | | 3130 | 3.3 | 0.687 | 6.0 | LOS A | 7.2 | 183.1 | 0.46 | 0.51 | 0.51 | 35.8 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-79th Ave - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 10 | 3.0 | 0.684 | 10.9 | LOS B | 6.4 | 162.8 | 0.50 | 0.49 | 0.50 | 36.3 |
| 8 | T1 | 1910 | 3.0 | 0.684 | 5.0 | LOS A | 6.4 | 162.8 | 0.48 | 0.47 | 0.48 | 36.3 |
| 18 | R2 | 60 | 3.0 | 0.684 | 5.0 | LOS A | 6.3 | 162.4 | 0.46 | 0.46 | 0.46 | 35.1 |
| Approach | | 1980 | 3.0 | 0.684 | 5.0 | LOS A | 6.4 | 162.8 | 0.48 | 0.47 | 0.48 | 36.3 |
| East: WB 79th Ave | | | | | | | | | | | | |
| 1 | L2 | 10 | 5.0 | 0.373 | 16.7 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 34.1 |
| 6 | T1 | 1 | 5.0 | 0.373 | 10.8 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 34.0 |
| 16 | R2 | 175 | 5.0 | 0.373 | 10.8 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 33.0 |
| Approach | | 186 | 5.0 | 0.373 | 11.1 | LOS B | 1.8 | 48.0 | 0.80 | 0.93 | 0.92 | 33.1 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 120 | 5.0 | 0.263 | 9.9 | LOS A | 1.5 | 39.6 | 0.12 | 0.48 | 0.12 | 36.7 |
| 4 | T1 | 675 | 5.0 | 0.263 | 4.1 | LOS A | 1.6 | 40.3 | 0.11 | 0.41 | 0.11 | 37.3 |
| 14 | R2 | 5 | 5.0 | 0.263 | 4.2 | LOS A | 1.6 | 40.3 | 0.11 | 0.37 | 0.11 | 36.3 |
| Approach | | 800 | 5.0 | 0.263 | 4.9 | LOS A | 1.6 | 40.3 | 0.12 | 0.42 | 0.12 | 37.2 |
| West: EB 79th Ave | | | | | | | | | | | | |
| 5 | L2 | 1 | 0.0 | 0.003 | 11.4 | LOS B | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 36.0 |
| 2 | T1 | 1 | 0.0 | 0.003 | 5.5 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 35.8 |
| 12 | R2 | 1 | 0.0 | 0.003 | 5.4 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 34.8 |
| Approach | | 3 | 0.0 | 0.003 | 7.4 | LOS A | 0.0 | 0.2 | 0.43 | 0.58 | 0.43 | 35.5 |
| All Vehicles | | 2969 | 3.7 | 0.684 | 5.4 | LOS A | 6.4 | 162.8 | 0.40 | 0.49 | 0.41 | 36.3 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-88th Ave - Sensitivity Scenario]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

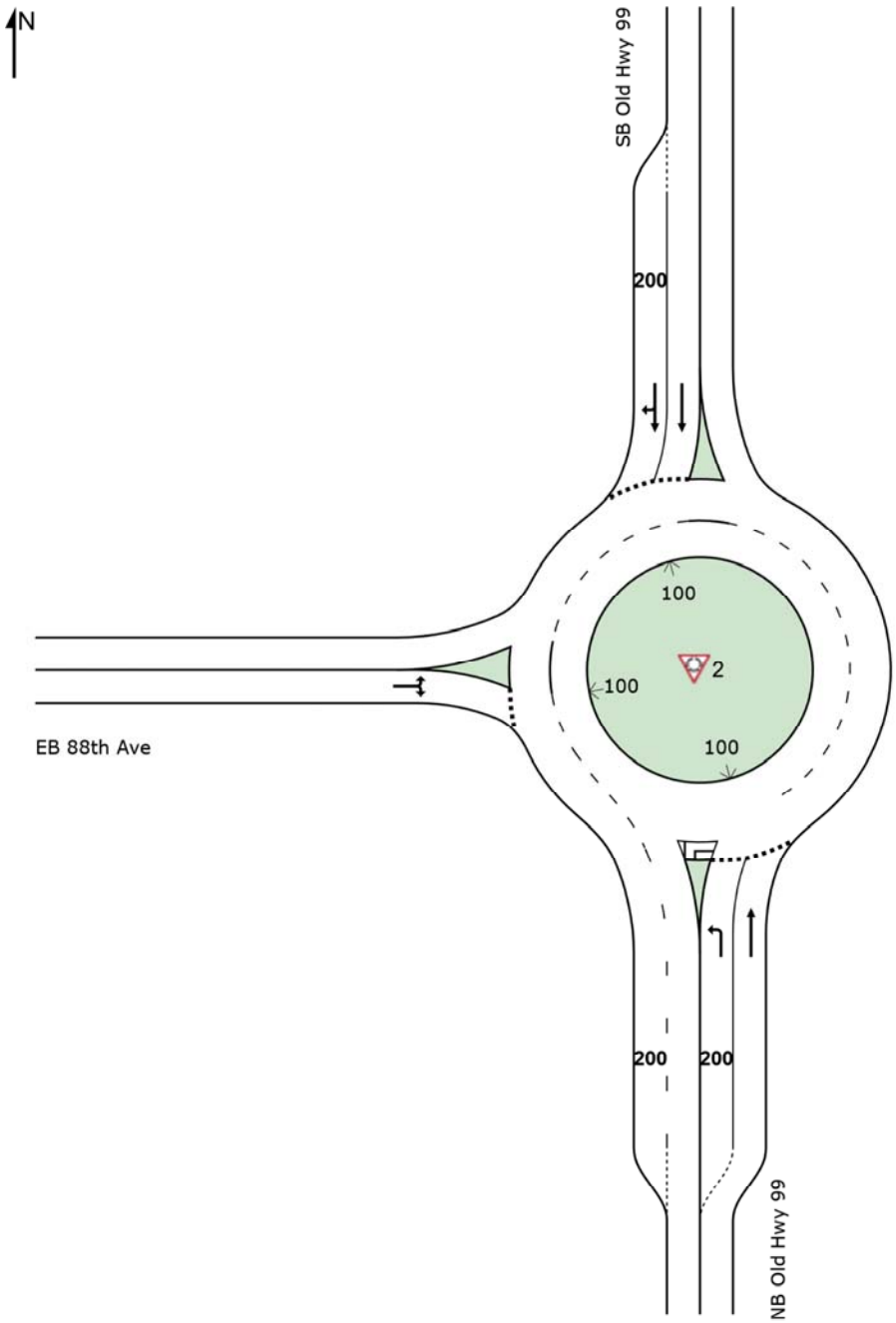
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 55 | 1.0 | 0.791 | 26.0 | LOS C | 11.4 | 287.5 | 1.00 | 1.28 | 1.71 | 29.9 |
| 8 | T1 | 1225 | 1.0 | 0.791 | 18.6 | LOS B | 13.3 | 336.4 | 1.00 | 1.24 | 1.68 | 30.6 |
| 18 | R2 | 10 | 1.0 | 0.791 | 17.7 | LOS B | 13.3 | 336.4 | 1.00 | 1.21 | 1.66 | 30.2 |
| Approach | | 1290 | 1.0 | 0.791 | 18.9 | LOS B | 13.3 | 336.4 | 1.00 | 1.24 | 1.68 | 30.6 |
| East: WB 88th Ave | | | | | | | | | | | | |
| 1 | L2 | 5 | 2.0 | 0.097 | 18.4 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 33.1 |
| 6 | T1 | 5 | 2.0 | 0.097 | 12.5 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 33.0 |
| 16 | R2 | 25 | 2.0 | 0.097 | 12.5 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 32.1 |
| Approach | | 35 | 2.0 | 0.097 | 13.3 | LOS B | 0.5 | 12.8 | 0.86 | 0.93 | 0.86 | 32.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 7 | L2 | 40 | 3.0 | 0.167 | 10.0 | LOS A | 1.0 | 26.0 | 0.22 | 0.43 | 0.22 | 37.0 |
| 4 | T1 | 225 | 3.0 | 0.167 | 4.1 | LOS A | 1.0 | 26.0 | 0.22 | 0.43 | 0.22 | 36.9 |
| 14 | R2 | 230 | 3.0 | 0.167 | 4.4 | LOS A | 1.0 | 25.1 | 0.23 | 0.46 | 0.23 | 36.0 |
| Approach | | 495 | 3.0 | 0.167 | 4.7 | LOS A | 1.0 | 26.0 | 0.22 | 0.44 | 0.22 | 36.5 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 732 | 4.0 | 0.698 | 12.9 | LOS B | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.5 |
| 2 | T1 | 10 | 4.0 | 0.698 | 7.0 | LOS A | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.4 |
| 12 | R2 | 5 | 4.0 | 0.698 | 7.0 | LOS A | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 32.5 |
| Approach | | 747 | 4.0 | 0.698 | 12.8 | LOS B | 6.2 | 159.8 | 0.63 | 0.79 | 0.71 | 33.5 |
| All Vehicles | | 2567 | 2.3 | 0.791 | 14.3 | LOS B | 13.3 | 336.4 | 0.74 | 0.95 | 1.11 | 32.4 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 2 [AM 2040 Old Hwy 99-93rd Ave -Land Use 2 (2 NB lanes)]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout




**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: SCJ ALLIANCE | Created: Tuesday, May 5, 2020 2:57:15 PM
Project: N:\Projects\0625 City of Tumwater\0625.29 Tumwater Old Hwy 99 and 79th Ave Corridor Study\Phase 02 - Corridor Traffic Validation

# MOVEMENT SUMMARY

## Site: 2 [AM 2040 Old Hwy 99-93rd Ave - Sensitivity Scenario multiple entry lanes]

Projected 2040
AM Peak Hour
Site Category: (None)
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Old Hwy 99 | | | | | | | | | | | | |
| 3 | L2 | 225 | 1.0 | 0.183 | 9.9 | LOS A | 0.9 | 22.9 | 0.11 | 0.62 | 0.11 | 34.8 |
| 8 | T1 | 1135 | 1.0 | 0.659 | 3.7 | LOS A | 6.8 | 170.3 | 0.18 | 0.34 | 0.18 | 37.9 |
| Approach | | 1360 | 1.0 | 0.659 | 4.8 | LOS A | 6.8 | 170.3 | 0.17 | 0.39 | 0.17 | 37.3 |
| North: SB Old Hwy 99 | | | | | | | | | | | | |
| 4 | T1 | 180 | 4.0 | 0.106 | 4.8 | LOS A | 0.4 | 10.2 | 0.28 | 0.45 | 0.28 | 36.9 |
| 14 | R2 | 10 | 4.0 | 0.053 | 5.2 | LOS A | 0.2 | 4.8 | 0.29 | 0.46 | 0.29 | 35.6 |
| Approach | | 190 | 4.0 | 0.106 | 4.8 | LOS A | 0.4 | 10.2 | 0.28 | 0.45 | 0.28 | 36.9 |
| West: EB 88th Ave | | | | | | | | | | | | |
| 5 | L2 | 20 | 6.0 | 0.158 | 10.5 | LOS B | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 37.1 |
| 12 | R2 | 155 | 6.0 | 0.158 | 4.6 | LOS A | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 35.8 |
| Approach | | 175 | 6.0 | 0.158 | 5.2 | LOS A | 0.6 | 15.3 | 0.28 | 0.53 | 0.28 | 35.9 |
| All Vehicles | | 1725 | 1.8 | 0.659 | 4.8 | LOS A | 6.8 | 170.3 | 0.19 | 0.41 | 0.19 | 37.1 |

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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.