

**Exhibit B**

**TADI**

**Traffic Study**

**Right Turn Island (Vettelson Rd.)**

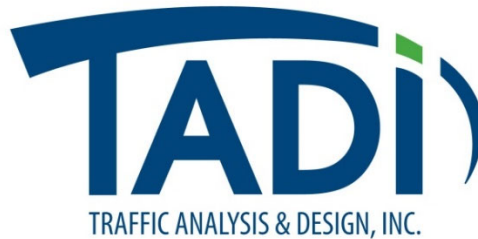
**W Capitol Drive Improvements**

ABBREVIATED TRAFFIC IMPACT ANALYSIS FOR:

# KWIK TRIP & THREE LEAF PARTNERS DEVELOPMENTS

VILLAGE OF HARTLAND, WISCONSIN

DATE SUBMITTED: MARCH 30, 2023



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*"I certify that this Traffic Impact Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."*

**KWIK TRIP & THREE LEAF PARTNERS DEVELOPMENT  
ABBREVIATED TIA  
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## CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

### PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

Kwik Trip, Inc. and Three Leaf Partners are proposing to develop vacant land parcels along West Capitol Drive, near STH 83 in the Village of Hartland, Waukesha County, Wisconsin. Kwik Trip, Inc. is proposing to construct a Kwik Trip on approximately 5.4 acres between STH 83, Capitol Drive, and Vettelson Road. Three Leaf Partners is proposing to construct a 400 to 450-unit multi-family development (“Hartland Quarry Apartments”) on about 45.4 acres east of Capitol Drive directly opposite the Kwik Trip site. Access to both sites will be at Capitol Drive.

This Abbreviated traffic impact analysis (TIA) report follows the WisDOT *Statewide TIA Guidelines*. The TIA evaluates the expected weekday AM and PM peak hour operating conditions with base year 2023 background traffic, plus the additional traffic volumes expected from the buildout of both the Kwik Trip gas station/convenience store and Hartland Quarry Apartments developments.

### PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, a description of the proposed developments and conclusions based on the findings of the TIA.

#### B1. Study Area

The study intersections include:

- Capitol Drive & STH 83
- Capitol Drive & Palmer Drive/Proposed Kwik Trip North Driveway
- Capitol Drive & Proposed Kwik Trip South Driveway
- Capitol Drive & Vettelson Road/Proposed Apartments Driveway

Turning movement traffic counts were collected at the existing study intersections in March 2022 and March 2023. The peak hour turning movement counts were balanced between intersections and used as the Year 2023 Background traffic volumes evaluated in this study.

#### B2. Proposed Development

The proposed Kwik Trip development includes a convenience store, car wash, and 22 fueling positions (20 for autos and two for heavy trucks). Two access driveways to Capitol Drive are proposed for the Kwik Trip, one full-access driveway across from Palmer Road and one full-access driveway approximately 425 feet to the southeast. Based on national trip data, the Kwik Trip generates 4,640 driveway trips on a typical weekday, with 335 driveway trips in the weekday AM peak hour and 335 driveway trips in the weekday PM peak hour.

The proposed Hartland Quarry Apartments development includes 450 total units on site. One driveway to Capitol Drive is currently proposed for the site. Based on national trip data, the Hartland Quarry Apartments development generates 2,960 driveway trips on a typical weekday, with 160 driveway trips in the weekday AM peak hour and 215 driveway trips in the weekday PM peak hour.

#### B3. Recommended Modifications

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> Edition. Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS

‘F’. For the purposes of this study, LOS D or better was used to define desirable peak hour operating conditions.

*Improvements are for jurisdictional consideration and are not legally binding. The Village of Hartland reserves the right to determine alternative solutions.*

The recommendations listed in this report are shown on [Exhibit 1-1](#).

#### Background Traffic Recommendations

The following are recommended to address background traffic (no development) conditions at the study intersections. These recommendations are estimated to be the responsibility of the Village of Hartland:

- Per the Village of Hartland, provide a sidewalk along the north side of Capitol Drive from STH 83 to across Palmer Drive.
- The Village has indicated that westbound traffic on Capitol Drive “cut the corner” when turning onto Vettelson Drive. Historical crashes have not identified any crash pattern due to this movement. It is recommended that the Village explore options to mitigate this issue by constructing a right-turn island, moving stop bars, etc. Sight distance and vehicle turning radii need to be considered in design features prior to construction.

#### Build Traffic Recommendations (Kwik Trip)

##### *Capitol Drive & Kwik Trip North Driveway*

- Clear and level the land in the southeast corner of the STH 83/Capitol Drive intersection to provide adequate sight distance for full-access turning movements into and out of the driveway.
- Install a “No Trucks” sign at the Kwik Trip north driveway exit to Capitol Drive.
- Although not warranted based on traffic volumes, provide a right-turn lane on Capitol Drive to separate the slower-moving right-turn from through traffic traveling eastbound around the curve on Capitol Drive.

##### *Capitol Drive & Kwik Trip South Driveway*

- Clear trees on the Hartland Quarry Apartments site to provide 510 feet of visibility to the right of the Kwik Trip south driveway.
- Construct the driveway with a single entrance and exit lane and stop sign control on the approach to Capitol Drive. Two-way stop control results in low delays and queues at all intersection movements during the peak hours. Roundabout control provides the same, but results in considerable additional cost and right-of-way to implement this alternative. Therefore, it is not a recommended option in this study.
- Per the Village requirements, provide a pedestrian crossing that connects between the Kwik Trip site and a future sidewalk along the north side of Capitol Drive.

#### Build Traffic Recommendations (Hartland Quarry Apartments)

##### *General*

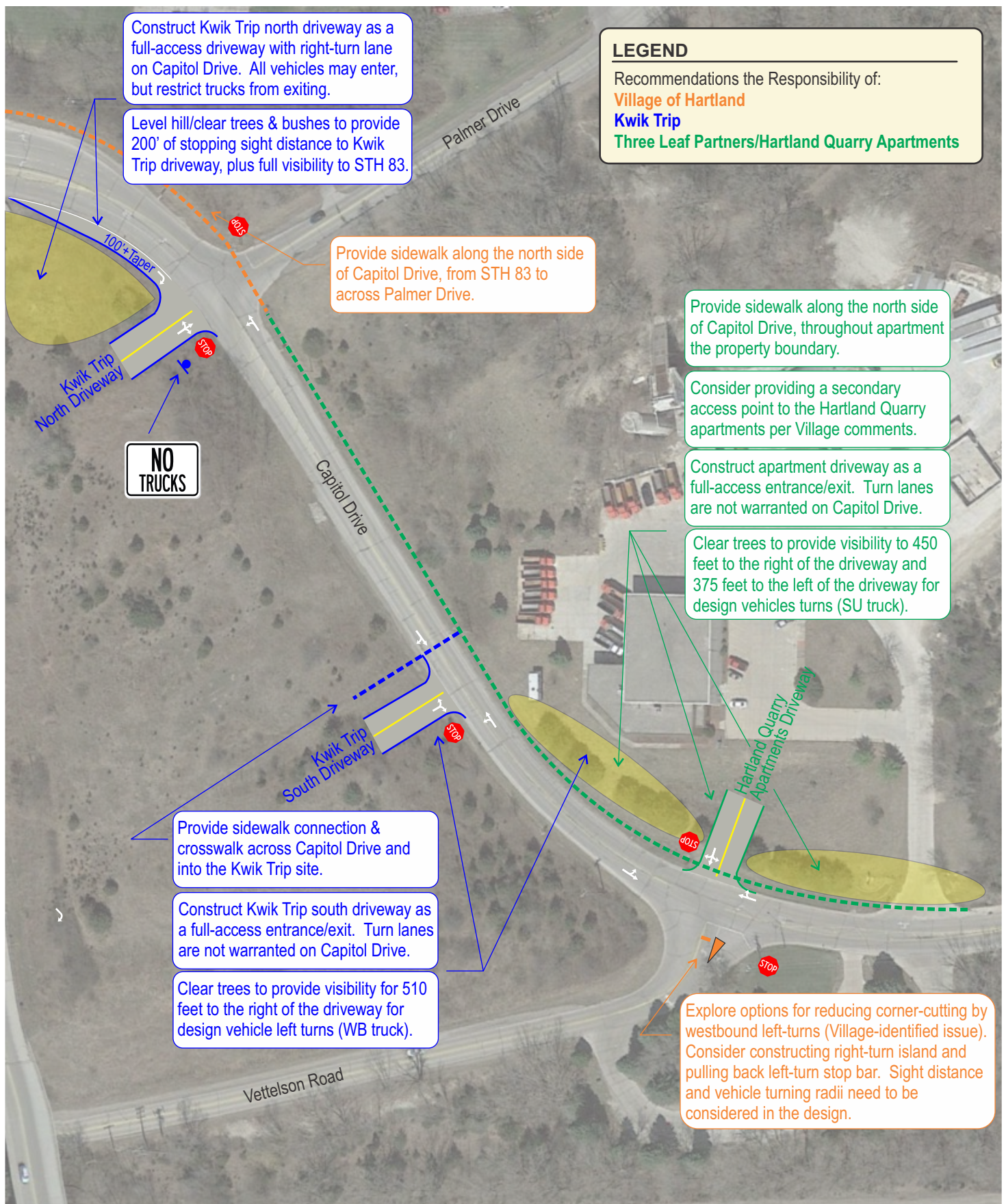
- Per the Village of Hartland, provide a sidewalk along the north side of Capitol Drive throughout the limits of the Hartland Quarry Apartments property.

*Capitol Drive & Hartland Quarry Apartments Driveway*

- Clear trees on the Hartland Quarry Apartments site to provide 375 feet of visibility to the left of the Kwik Trip south driveway and 450 feet of visibility to the right of the Kwik Trip south driveway.
- Construct the driveway with a single entrance and exit lane and stop sign control on the approach to Capitol Drive. Align the driveway across from Vettelson Drive. Two-way stop control results in low delays and queues at all intersection movements during the peak hours. Roundabout control provides the same, but results in considerable additional cost and right-of-way to implement this alternative. Therefore, it is not a recommended option in this study.

**B4. Conclusion**

The modifications listed above are expected to accommodate traffic through full buildout of the proposed Kwik Trip and Hartland Quarry Apartments development.



## CHAPTER II – PROPOSED DEVELOPMENT

### PART A – ON-SITE DEVELOPMENTS

A street map illustrating the location of the proposed development site with respect to the existing surrounding roadway system is shown on [Exhibit 2-1](#).

#### Kwik Trip, Inc. Development – Kwik Trip #1283

The conceptual site plan for the Kwik Trip #1283 is on [Exhibit 2-2](#). The Kwik Trip is proposed to include a convenience store, car wash, 20 fueling positions for automobiles and light trucks, and two fueling positions for larger trucks and busses. Access to the site is proposed at two locations – one at Capitol Drive, directly across from Palmer Drive and one at Capitol Drive, approximately 425 feet southeast of Palmer Drive. Based on sight distance studies (see Chapter V, Part E), both Kwik Trip driveways can operate with full-access turning movements if the sight obstructions are cleared (hill, bushes and trees north of the Kwik Trip north driveway and existing treeline on the Three Leaf Partners site).

#### Three Leaf Partners Development – Hartland Quarry Apartments

The conceptual site plan for the Hartland Quarry Apartments is on [Exhibit 2-3](#). The plan for the site shows approximately 448 multi-family units in 19 buildings with two-three stories each. Access to the site is proposed at one location to Capitol Drive, directly across from Vettelson Road. It is noted that the Village of Hartland is requesting that the site be modified to accommodate an additional access point (for emergency vehicles).

#### Buildout Scenarios

The Kwik Trip and Hartland Quarry Apartments are evaluated in this study for the following development scenarios, which reflect the likely staging/time-frame for development of each site:

- Scenario 1: Kwik Trip only
- Scenario 2: Kwik Trip plus 400 multi-family residential units
- Scenario 3: Kwik Trip plus 450 multi-family residential units

### PART B – STUDY AREA

#### B1. Influence Area

The development sites are located on Capitol Drive near the STH 16 interchange with STH 83. It is expected that the majority of new development trips will travel to/from the north towards the interchange area. A large portion of new trips are also expected to travel to/from the south towards the I-94 interchange with STH 83, which is located approximately 3 ½ miles to the south of the site.

#### B2. Area of Significant Traffic Impact

The study intersections evaluated in this TIA include:

- Capitol Drive & STH 83
- Capitol Drive & Palmer Drive/Proposed Kwik Trip North Driveway
- Capitol Drive & Proposed Kwik Trip South Driveway
- Capitol Drive & Vettelson Road/Proposed Apartments Driveway

The Capitol Drive intersection with STH 83 operates with traffic signal control. All other study intersections operate with stop sign control on the minor street approaches.

### PART C – OFF-SITE LAND USE AND DEVELOPMENT

No off-site developments were included in this study.

## **PART D – SITE ACCESSIBILITY**

### **D1. Study Area Roadways**

STH 83 is a two-lane undivided north/south Principal Arterial with a 35-mph speed limit within the study area. The 2018 Wisconsin Department of Transportation (WisDOT) annual average daily traffic (AADT) volume on STH 83 was 17,700 vehicles per day (vpd) north of Capitol Drive and 15,800 vpd south of Capitol Drive.

Capitol Drive is a two-lane undivided Minor Arterial with a 25-mph speed limit. Although Capitol Drive runs northwest/southeast in the immediate study area, Capitol Drive is generally an east/west roadway (and therefore is defined as such throughout this report). Capitol Drive has a 2015 WisDOT AADT of 3,400 north of Palmer Drive and a 2018 WisDOT AADT of 3,200 vpd south of Palmer Drive.

Vettelson Road is a two-lane undivided east/west Minor Arterial with a 25-mph speed limit within the study area. Vettelson Road has a 2015 WisDOT AADT of 1,300 vpd just west of Capitol Drive.

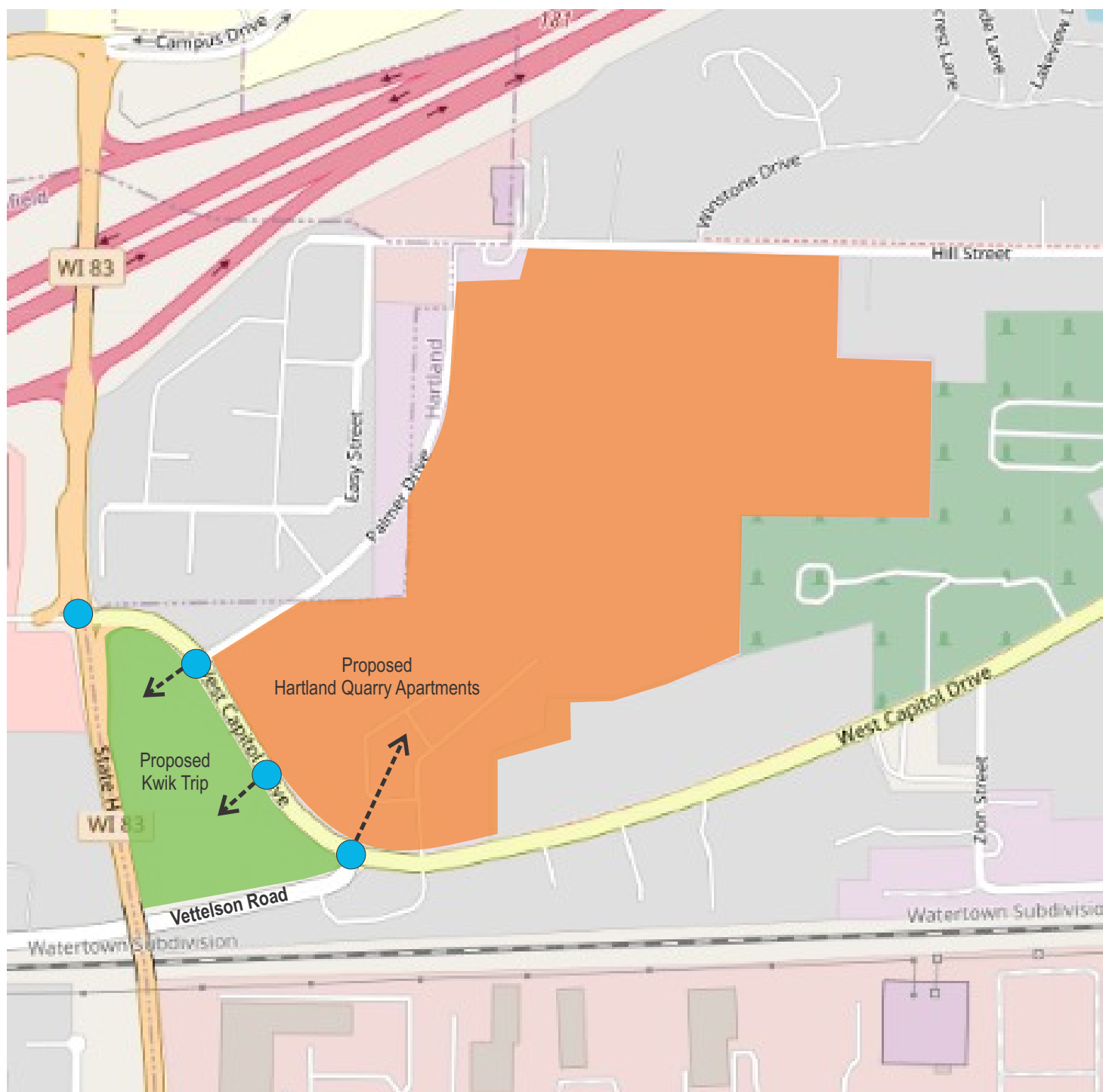
Palmer Drive is a two-lane undivided east/west Collector roadway with a 25-mph speed limit. Palmer Drive primarily provides access for residential developments along the south side of STH 16.

### **D2. Pedestrian & Bicycle Accommodations**

The development site is located in an area without sidewalks or multi-use trails along the study segments of STH 83, Palmer Drive or Vettelson Road. With the exception of a sidewalk on the north side of Capitol Drive, west of STH 83, there are no sidewalks or multi-use trails along Capitol Drive.

### **D3. Transit Accommodations**

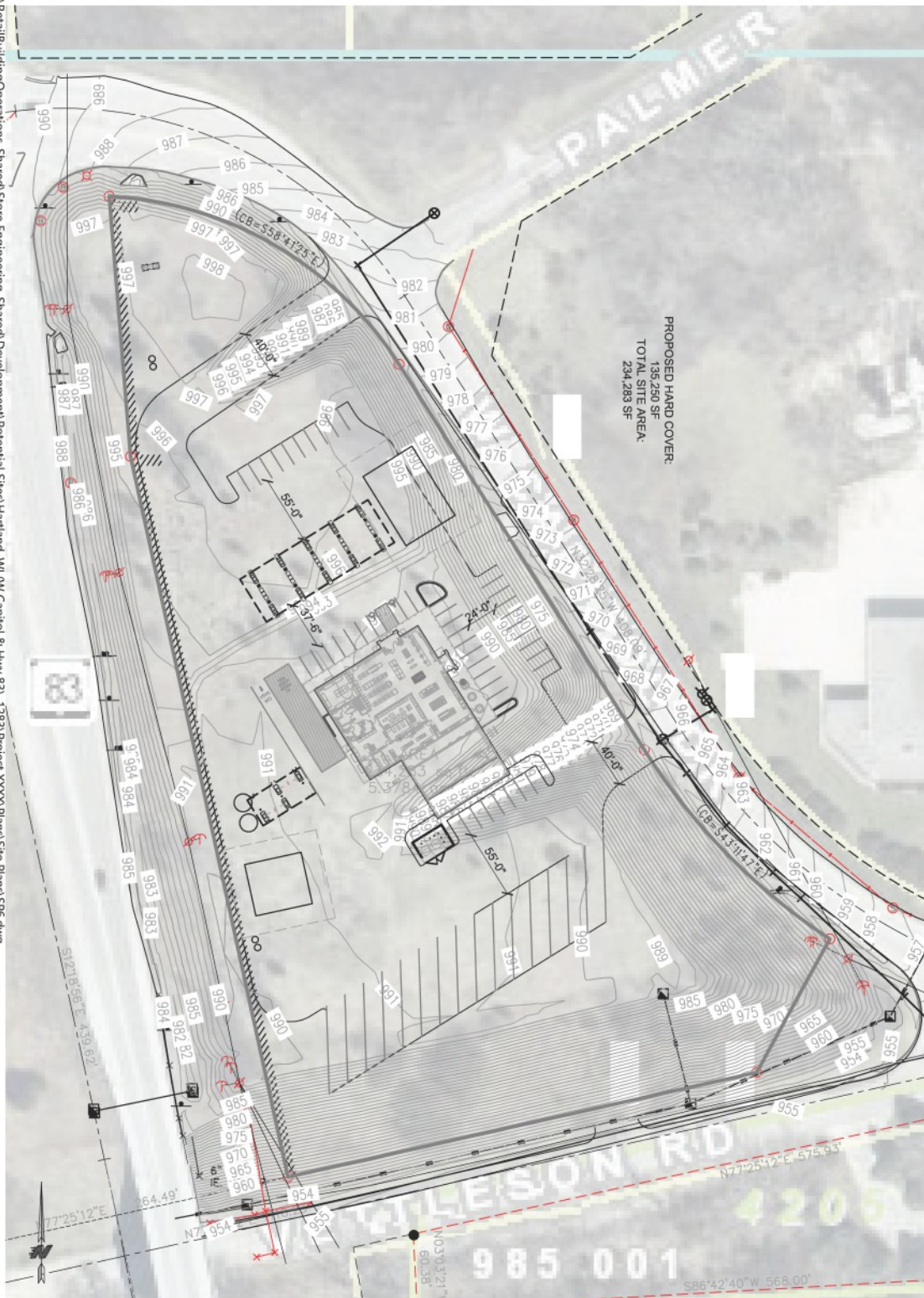
No regularly scheduled public transit service or park-and-ride lots were identified within the study area.



#### LEGEND

- Kwik Trip Site
- Hartland Quarry Apartments Site
- Proposed Access
- Study Intersection

K:\Retail\BuildingOperations\_Shared\Store Development\Potential Sites\Hartland, WI (W Capitol & Hwy 83) 1283\Project XXXX\Plans\Site Plans\SP6.dwg



|                                                                                                                                               |  |                                                                                             |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------|--|--|--|
| <b>SITE PLAN</b><br><b>CONVENIENCE STORE #1283</b><br><b>1-BAY CW &amp; 2 LANE DIESEL</b><br><b>WEST CAPITOL DRIVE</b><br><b>HARTLAND, WI</b> |  | <b>Kwik Trip, Inc.</b><br>1628 OAK STREET<br>LA CROSSE, WI 54602-2107<br>FAX (608) 785-8800 |  |  |  |
| <b>SP6</b>                                                                                                                                    |  |                                                                                             |  |  |  |



**JLA**  
ARCHITECTS

**HARTLAND QUARRY APARTMENTS**

RENDERED MASTERPLAN



FEBRUARY 6, 2023

1"=200' @ 11x17

**THREE LEAF**  
PARTNERS

## CHAPTER III – ANALYSIS OF EXISTING CONDITIONS

### PART A – PHYSICAL CHARACTERISTICS

A transportation detail showing the existing lane configurations, traffic controls, posted speed limits, and approximate intersection spacing is included in [Exhibit 3-1](#).

### PART B – TRAFFIC VOLUMES

#### B1. Traffic Counts

WisDOT provided a March 2022 traffic count at the STH 83/Capitol Drive intersection for this study. The WisDOT count was collected from 6:00 a.m. to 7:00 p.m.

TADI collected weekday turning movement traffic counts at the other study intersections in March 2023. The Capitol Drive/Vettelson Road intersection was counted from 6:00 a.m. to 7:00 p.m. (for warrant studies), and the Capitol Drive/Palmer Drive intersection was collected from 6:00-9:00 a.m. and from 3:00-6:00 p.m. All traffic count data collected for this study is in [Appendix A](#).

#### B2. Peak Hour Time Periods

Based on the traffic count data collected, the weekday peak hours were determined to occur during the following times:

- Weekday morning (AM) peak hour: 7:00-8:00 a.m.
- Weekday afternoon (PM) peak hour: 4:30-5:30 p.m.

The turning movement traffic counts were compiled for the peak hours and are shown as the Year 2023 Background Traffic Volumes on [Exhibit 3-2](#). The intersection peak hour factors and heavy vehicle percentages for each intersection approach were compiled for these peak hours and are shown in a table in [Appendix A](#).

### PART C – CAPACITY LEVEL OF SERVICE

#### C1. Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM), 6<sup>th</sup> Edition. Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, LOS D or better was used to define desirable peak hour operating conditions. Descriptions of the various levels of service are in [Table 2](#):

**Table 2. LOS Descriptions**

| LOS | Signalized Intersections<br>Control Delay/Vehicle<br>(sec/veh)                                                                                         | Unsignalized Intersections<br>Avg. Control Delay<br>(sec/veh) | Relative<br>Delay  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------|
| A   | ≤10                                                                                                                                                    | ≤10                                                           | Short<br>Delays    |
|     | Free-flow traffic operations at average travel speeds. Vehicles completely unimpeded in ability to maneuver. Minimal delay at signalized intersections |                                                               |                    |
| B   | > 10 - 20                                                                                                                                              | > 10 - 15                                                     |                    |
|     | Reasonably unimpeded traffic operations at average travel speeds. Vehicle maneuverability slightly restricted. Low traffic delays.                     |                                                               |                    |
| C   | > 20 - 35                                                                                                                                              | > 15 - 25                                                     |                    |
|     | Stable traffic operations. Lane changes becoming more restricted. Travel speeds reduced to half of average free flow travel speeds. Longer             |                                                               |                    |
| D   | > 35 - 55                                                                                                                                              | > 25 - 35                                                     | Moderate<br>Delays |
|     | Small increases in traffic flow can cause increased delays. Delays likely attributable to increased traffic, reduced signal progression, and adverse   |                                                               |                    |
| E   | > 55 - 80                                                                                                                                              | > 35 - 50                                                     |                    |
|     | Significant delays. Travel speeds reduced to one-third of average free flow travel speed.                                                              |                                                               |                    |
| F   | > 80                                                                                                                                                   | > 50                                                          | Long<br>Delays     |
|     | Extremely low speeds. Intersection congestion. Long delays. Extensive traffic queues at intersections.                                                 |                                                               |                    |

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

## C2. Year 2023 Background Traffic Operations – Existing Transportation System

The 2023 Background traffic analysis was conducted using the existing intersection geometrics, peak hour factors, heavy vehicle percentages, saturation flow calculations and traffic control. [Exhibit 3-3](#) shows the Year 2023 Background traffic peak hour operating conditions at the study intersections. The tables show the peak hour LOS per lane group and corresponding delay (in seconds per vehicle), volume-to-capacity (v/c) ratio, and 95<sup>th</sup> percentile queue. The analysis worksheets for the Year 2023 Background traffic condition are in [Appendix B](#).

With the 2023 Background traffic volumes, the Synchro analysis shows that all traffic movements at the study intersections operate acceptably at LOS D or better during the weekday AM and PM peak hours.

## PART D – SOURCES OF DATA

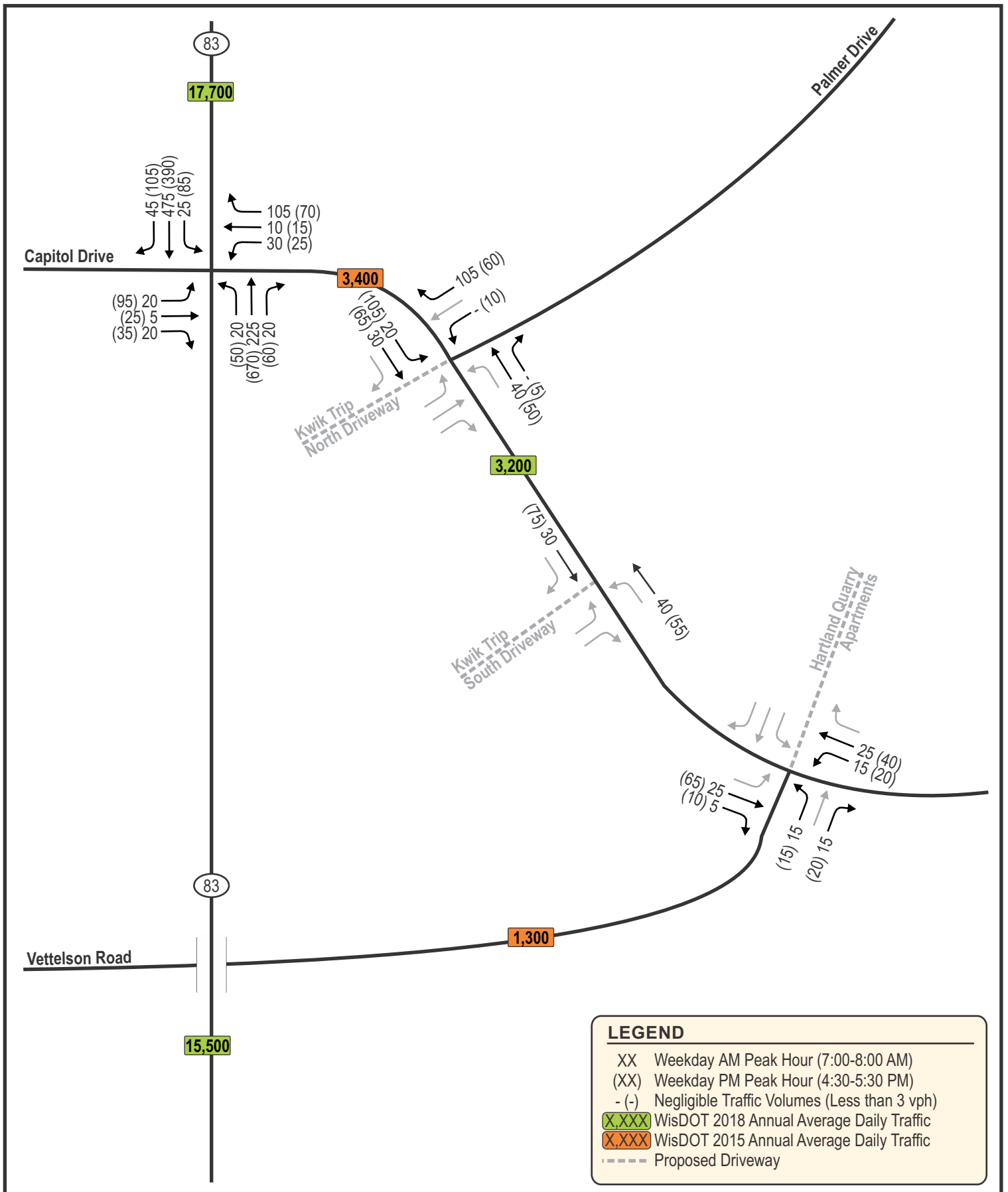
The following sources of data were obtained for use in conducting this traffic study:

- AADT Counts – WisDOT online TCMap
- Turning movement traffic counts – TADI & WisDOT
- Existing field geometrics – TADI & Google Earth
- Traffic signal phasing/timing ([Appendix A](#)) – WisDOT
- Saturation flow calculations ([Appendix A](#)) – TADI



**LEGEND**

- Stop Sign
- Traffic Signal Control
- XX' Turn Bay Storage Length (In Feet)
- Lane Configuration
- XX' Distance Between Intersections and Driveways



**Year 2023 Background Traffic Peak Hour Operating Conditions**  
**Existing Transportation System**

| Intersection                                                                        | Peak Hour                                                                             | Metric  | Level of Service (LOS) per Movement by Approach |      |      |           |      |      |            |      |      |            |      |      | I/S<br>LOS & Delay |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------|-------------------------------------------------|------|------|-----------|------|------|------------|------|------|------------|------|------|--------------------|
|                                                                                     |                                                                                       |         | Eastbound                                       |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |                    |
|                                                                                     |                                                                                       |         | ↗                                               | →    | ↘    | ↙         | ←    | ↖    | ↖          | ↑    | ↗    | ↘          | ↓    | ↙    |                    |
| Node 100: Capitol Drive (E/W) & STH 83 (N/S)<br><i>Traffic Signal Control</i>       | AM                                                                                    | Lanes-> | 1                                               | 1    | 1    | 1         | 1    | 1    | 1          | 2    | 1    | 1          | 2    | 1    | 10                 |
|                                                                                     |                                                                                       | LOS     | D                                               | D    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    |                    |
|                                                                                     |                                                                                       | Delay   | 37                                              | 35   | 36   | 37        | 35   | 38   | 4          | 5    | 5    | 4          | 6    | 4    |                    |
|                                                                                     |                                                                                       | v/c     | 0.13                                            | 0.03 | 0.10 | 0.17      | 0.06 | 0.49 | 0.05       | 0.13 | 0.02 | 0.04       | 0.27 | 0.04 |                    |
|                                                                                     |                                                                                       | Queue   | 30'                                             | 15'  | 25'  | 40'       | 20'  | 75'  | 10'        | 45'  | 10'  | 10'        | 90'  | 15'  |                    |
|                                                                                     | PM                                                                                    | LOS     | D                                               | D    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    | 11                 |
|                                                                                     |                                                                                       | Delay   | 39                                              | 36   | 36   | 37        | 35   | 36   | 4          | 7    | 5    | 4          | 6    | 5    |                    |
|                                                                                     |                                                                                       | v/c     | 0.45                                            | 0.12 | 0.13 | 0.12      | 0.08 | 0.26 | 0.07       | 0.30 | 0.04 | 0.15       | 0.18 | 0.07 |                    |
| Queue                                                                               | 100'                                                                                  | 35'     | 35'                                             | 35'  | 25'  | 55'       | 20'  | 140' | 25'        | 25'  | 75'  | 35'        |      |      |                    |
| Node 200: Capitol Drive (E/W) & Palmer Drive (N/S)<br><i>Stop Sign Control (SB)</i> | AM                                                                                    | Lanes-> | 1                                               | 1    | -    | -         | 1    | -    | -          | -    | 1    | -          | -    | 5    |                    |
|                                                                                     |                                                                                       | LOS     | A                                               | *    | -    | -         | *    | -    | -          | -    | A    | -          | -    |      |                    |
|                                                                                     |                                                                                       | Delay   | 7                                               | *    | -    | -         | *    | -    | -          | -    | 9    | -          | -    |      |                    |
|                                                                                     |                                                                                       | v/c     | 0.02                                            | *    | -    | -         | *    | -    | -          | -    | 0.13 | -          | -    |      |                    |
|                                                                                     | PM                                                                                    | Queue   | 0'                                              | *    | -    | -         | *    | -    | -          | -    | 10'  | -          | -    |      |                    |
|                                                                                     |                                                                                       | LOS     | A                                               | *    | -    | -         | *    | -    | -          | -    | A    | -          | -    | 4    |                    |
|                                                                                     |                                                                                       | Delay   | 7                                               | *    | -    | -         | *    | -    | -          | -    | 9    | -          | -    |      |                    |
|                                                                                     |                                                                                       | v/c     | 0.08                                            | *    | -    | -         | *    | -    | -          | -    | 0.09 | -          | -    |      |                    |
|                                                                                     | Queue                                                                                 | 5'      | *                                               | -    | -    | *         | -    | -    | -          | 10'  | -    | -          |      |      |                    |
|                                                                                     | Node 400: Capitol Drive (E/W) & Vettelson Road (N/S)<br><i>Stop Sign Control (NB)</i> | AM      | Lanes->                                         | -    | 1    | 1         | 1    | -    | 1          | -    | 1    | -          | -    | -    | 4                  |
| LOS                                                                                 |                                                                                       |         | -                                               | *    | A    | *         | -    | A    | -          | A    | -    | -          | -    |      |                    |
| Delay                                                                               |                                                                                       |         | -                                               | *    | 7    | *         | -    | 9    | -          | 8    | -    | -          | -    |      |                    |
| v/c                                                                                 |                                                                                       |         | -                                               | *    | 0.01 | *         | -    | 0.02 | -          | 0.02 | -    | -          | -    |      |                    |
| PM                                                                                  |                                                                                       | Queue   | -                                               | *    | 0'   | *         | -    | 5'   | -          | 5'   | -    | -          | -    |      |                    |
|                                                                                     |                                                                                       | LOS     | -                                               | *    | A    | *         | -    | A    | -          | A    | -    | -          | -    | 2    |                    |
|                                                                                     |                                                                                       | Delay   | -                                               | *    | 7    | *         | -    | 9    | -          | 8    | -    | -          | -    |      |                    |
|                                                                                     |                                                                                       | v/c     | -                                               | *    | 0.02 | *         | -    | 0.02 | -          | 0.03 | -    | -          | -    |      |                    |
| Queue                                                                               |                                                                                       | -       | *                                               | 0'   | *    | -         | 5'   | -    | 5'         | -    | -    | -          |      |      |                    |

## CHAPTER IV – FORECASTED TRAFFIC

### PART A – BACKGROUND TRAFFIC FORECASTING

The Abbreviated TIA for the proposed development site evaluated base year 2023 traffic conditions. Therefore, no traffic forecasting was prepared for this TIA.

### PART B – ON-SITE DEVELOPMENT TRAFFIC FORECASTING

#### B1. Trip Generation

Per WisDOT guidelines, the trip generation for Kwik Trip development is from the October 20, 2022, *WisDOT Specific Trip Generation Rates – Convenience Store/Gas Station Land Use* document. The traffic volumes generated by the Hartland Quarry Apartments development were calculated based on trip rates and/or fitted curve equations (FCE) published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition*.

The development trip generation and distribution tables are shown on [Exhibit 4-3](#). Based on WisDOT equations, the Kwik Trip development generates 2,090 new and 2,550 pass-by trips on a typical weekday, with 155 new and 180 pass-by trips in the AM peak hour and 155 new and 180 pass-by trips in the PM peak hour.

Pass-by trips occur when a motorist already on the roadway system stops at a development prior to continuing on their intended route. This study evaluates direct pass-by trips along Capitol Drive (e.g., a motorist on westbound Capitol Drive makes a stop at the Kwik Trip prior to continuing westbound on Capitol Drive). This study also evaluates diverted pass-by trips for traffic along STH 83 and Palmer Drive (e.g., traffic on these routes redirects onto Capitol Drive to make a stop at Kwik Trip prior to traveling back to their original route). For this study, 55% of the Kwik Trip trips were estimated to be direct or diverted pass-by trips.

Based on ITE equations, initial buildout (400 units) of the Hartland Quarry Apartments generates 2,640 trips on a typical weekday, with 145 new trips in the AM peak hour and 195 new trips in the PM peak hour. By full buildout (450 units), the Hartland Quarry Apartments generates 2,960 trips on a typical weekday, with 160 new trips in the AM peak hour and 215 new trips in the PM peak hour.

#### B2. Mode Split

For this study, the effect of organized carpools, van pools, buses, bicycles, and pedestrians were considered insignificant factors on traffic volumes in the area, and therefore, the effects of these alternative modes of travel were not included in this project.

#### B3. Trip Distribution

The new and pass-by trip distributions for the Kwik Trip and Hartland Quarry Apartments developments are listed below and shown on [Exhibit 7](#). The Kwik Trip trip distributions were based upon the existing traffic patterns at the study intersections, with adjustment made for more local traffic to/from the east on Capitol Drive (few nearby gas stations for local traffic). Since residential developments primarily exist along Palmer Drive, no trips to/from the Hartland Quarry Apartments were assigned along that route.

Kwik Trip – Trip Distribution (New Trips)

- 5% to/from the west on Capitol Drive
- 15% to/from the east on Capitol Drive
- 45% to/from the north on STH 83
- 25% to/from the south on STH 83

- 5% to/from the north on Palmer Drive
- 5% to/from the west on Vettelson Road

#### Kwik Trip – Trip Distribution (Pass-by Trips)

- 25% AM and 50% PM northbound on STH 83 (diverted pass-by)
- 55% AM and 30% PM southbound on STH 83 (diverted pass-by)
- 5% AM and 5% PM eastbound on Capitol Drive
- 5% AM and 5% PM westbound on Capitol Drive
- 10% AM and 5% PM southbound on Palmer Drive (diverted pass-by)
- 0% AM and 5% PM northbound on Palmer Drive (diverted pass-by)

#### Hartland Quarry Apartments – Trip Distribution (New Trips)

- 5% to/from the west on Capitol Drive
- 20% to/from the east on Capitol Drive
- 45% to/from the north on STH 83
- 25% to/from the south on STH 83
- 0% to/from the north on Palmer Drive
- 5% to/from the west on Vettelson Road

### **B4. Trip Assignment**

The on-site development trips were assigned to the study intersections based on their respective trip distribution percentages estimated for this study. The traffic assignments are shown on the following exhibits:

- [Exhibit 4-5A](#): Kwik Trip – New Trips
- [Exhibit 4-5B](#): Kwik Trip – Pass-by Trips
- [Exhibit 4-5C](#): Kwik Trip – Driveway Trips
- [Exhibit 4-6](#): Hartland Quarry Apartments Initial Buildout – New Trips
- [Exhibit 4-7](#): Hartland Quarry Apartments Full Buildout – New Trips

### **PART C – BUILD TRAFFIC**

The Year 2023 Build traffic volumes were generated by adding the on-site development driveway trips for each Access Option to the Year 2023 Background traffic volumes from [Exhibit 3-2B](#). The Year 2023 Build traffic volumes are shown on the following exhibits:

- [Exhibit 4-11](#): Year 2023 Build Traffic Volumes – Initial Buildout: Kwik Trip Only
- [Exhibit 4-12](#): Year 2023 Build Traffic Volumes – Interim Buildout: Kwik Trip + 400 Apartment Units
- [Exhibit 4-13](#): Year 2023 Build Traffic Volumes – Full Buildout: Kwik Trip + 450 Apartment Units

### Kwik Trip - Trip Generation<sup>1</sup> & Trip Distribution

| Land Use                                                           | ITE Code | Proposed Size     | Weekday Daily | AM Peak      |              |            | PM Peak      |              |            |
|--------------------------------------------------------------------|----------|-------------------|---------------|--------------|--------------|------------|--------------|--------------|------------|
|                                                                    |          |                   |               | In           | Out          | Total      | In           | Out          | Total      |
| Super Convenience Market/Gas Station (Store Category 3, Pop >300k) | WisDOT   | 22 Fuel Positions | 4,640<br>FCE  | 170<br>(51%) | 165<br>(49%) | 335<br>FCE | 170<br>(50%) | 165<br>(50%) | 335<br>FCE |
| <b>Total Driveway Trips</b>                                        |          |                   | <b>4,640</b>  | <b>170</b>   | <b>165</b>   | <b>335</b> | <b>170</b>   | <b>165</b>   | <b>335</b> |
| Wkday: AM (PM) Pass-by Trips                                       | WisDOT   | 55%: 55% (55%)    | -2,550        | -90          | -90          | -180       | -90          | -90          | -180       |
| <b>Total New Trips</b>                                             |          |                   | <b>2,090</b>  | <b>80</b>    | <b>75</b>    | <b>155</b> | <b>80</b>    | <b>75</b>    | <b>155</b> |

<sup>1</sup> ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.

#### TRIP DISTRIBUTION (New Trips)

|                      |             |           |           |           |           |
|----------------------|-------------|-----------|-----------|-----------|-----------|
| W. on Capitol Drive  | 5%          | 5         | 5         | 5         | 5         |
| E. on Capitol Drive  | 15%         | 10        | 10        | 10        | 10        |
| N. on STH 83         | 45%         | 35        | 30        | 35        | 30        |
| S. on STH 83         | 25%         | 20        | 20        | 20        | 20        |
| N. on Palmer Drive   | 5%          | 5         | 5         | 5         | 5         |
| W. on Vettelson Road | 5%          | 5         | 5         | 5         | 5         |
|                      | <b>100%</b> | <b>80</b> | <b>75</b> | <b>80</b> | <b>75</b> |

#### TRIP DISTRIBUTION (Pass-by Trips)

|                         |                |           |           |           |           |
|-------------------------|----------------|-----------|-----------|-----------|-----------|
| NB STH 83 (Diverted PB) | 25% (50%)      | 20        | 20        | 45        | 45        |
| SB STH 83 (Diverted PB) | 55% (30%)      | 50        | 50        | 25        | 25        |
| EB Capitol Drive        | 5% (5%)        | 5         | 5         | 5         | 5         |
| WB Capitol Drive        | 5% (5%)        | 5         | 5         | 5         | 5         |
| SB Palmer (Diverted PB) | 10% (5%)       | 10        | 10        | 5         | 5         |
| NB Palmer (Diverted PB) | 0% (5%)        | 0         | 0         | 5         | 5         |
|                         | <b>AM (PM)</b> | <b>90</b> | <b>90</b> | <b>90</b> | <b>90</b> |

### Hartland Quarry Apartments (Initial Buildout) Trip Generation<sup>1</sup> & Trip Distribution

| Land Use                                                   | ITE Code | Proposed Size | Weekday Daily | AM Peak     |              |            | PM Peak      |             |            |
|------------------------------------------------------------|----------|---------------|---------------|-------------|--------------|------------|--------------|-------------|------------|
|                                                            |          |               |               | In          | Out          | Total      | In           | Out         | Total      |
| Multifamily Housing (Low-Rise) (Not Close to Rail Transit) | 220      | 400 Units     | 2,640<br>FCE  | 35<br>(24%) | 110<br>(76%) | 145<br>FCE | 125<br>(63%) | 70<br>(37%) | 195<br>FCE |
| <b>Total New Trips</b>                                     |          |               | <b>2,640</b>  | <b>35</b>   | <b>110</b>   | <b>145</b> | <b>125</b>   | <b>70</b>   | <b>195</b> |

<sup>1</sup> ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.

#### TRIP DISTRIBUTION (New Trips)

|                      |             |           |            |            |           |
|----------------------|-------------|-----------|------------|------------|-----------|
| W. on Capitol Drive  | 5%          | 0         | 5          | 10         | 5         |
| E. on Capitol Drive  | 20%         | 10        | 20         | 25         | 15        |
| N. on STH 83         | 45%         | 15        | 50         | 55         | 30        |
| S. on STH 83         | 25%         | 10        | 30         | 30         | 15        |
| N. on Palmer Drive   | 0%          | 0         | 0          | 0          | 0         |
| W. on Vettelson Road | 5%          | 0         | 5          | 5          | 5         |
|                      | <b>100%</b> | <b>35</b> | <b>110</b> | <b>125</b> | <b>70</b> |

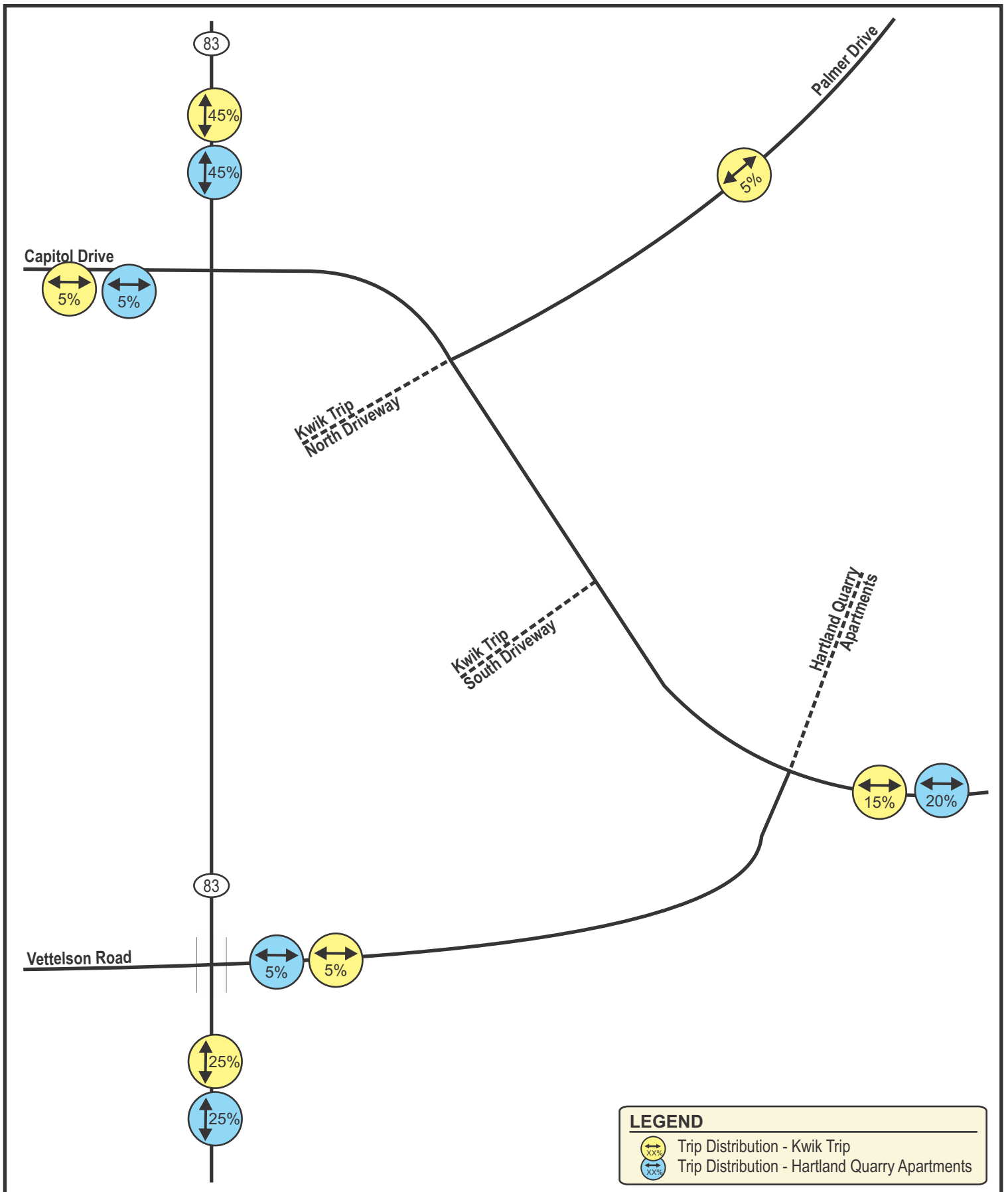
### Hartland Quarry Apartments Full Buildout) Trip Generation<sup>1</sup> & Trip Distribution

| Land Use                                                   | ITE Code | Proposed Size | Weekday Daily | AM Peak     |              |            | PM Peak      |             |            |
|------------------------------------------------------------|----------|---------------|---------------|-------------|--------------|------------|--------------|-------------|------------|
|                                                            |          |               |               | In          | Out          | Total      | In           | Out         | Total      |
| Multifamily Housing (Low-Rise) (Not Close to Rail Transit) | 220      | 450 Units     | 2,960<br>FCE  | 40<br>(24%) | 120<br>(76%) | 160<br>FCE | 135<br>(63%) | 80<br>(37%) | 215<br>FCE |
| <b>Total New Trips</b>                                     |          |               | <b>2,960</b>  | <b>40</b>   | <b>120</b>   | <b>160</b> | <b>135</b>   | <b>80</b>   | <b>215</b> |

<sup>1</sup> ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.

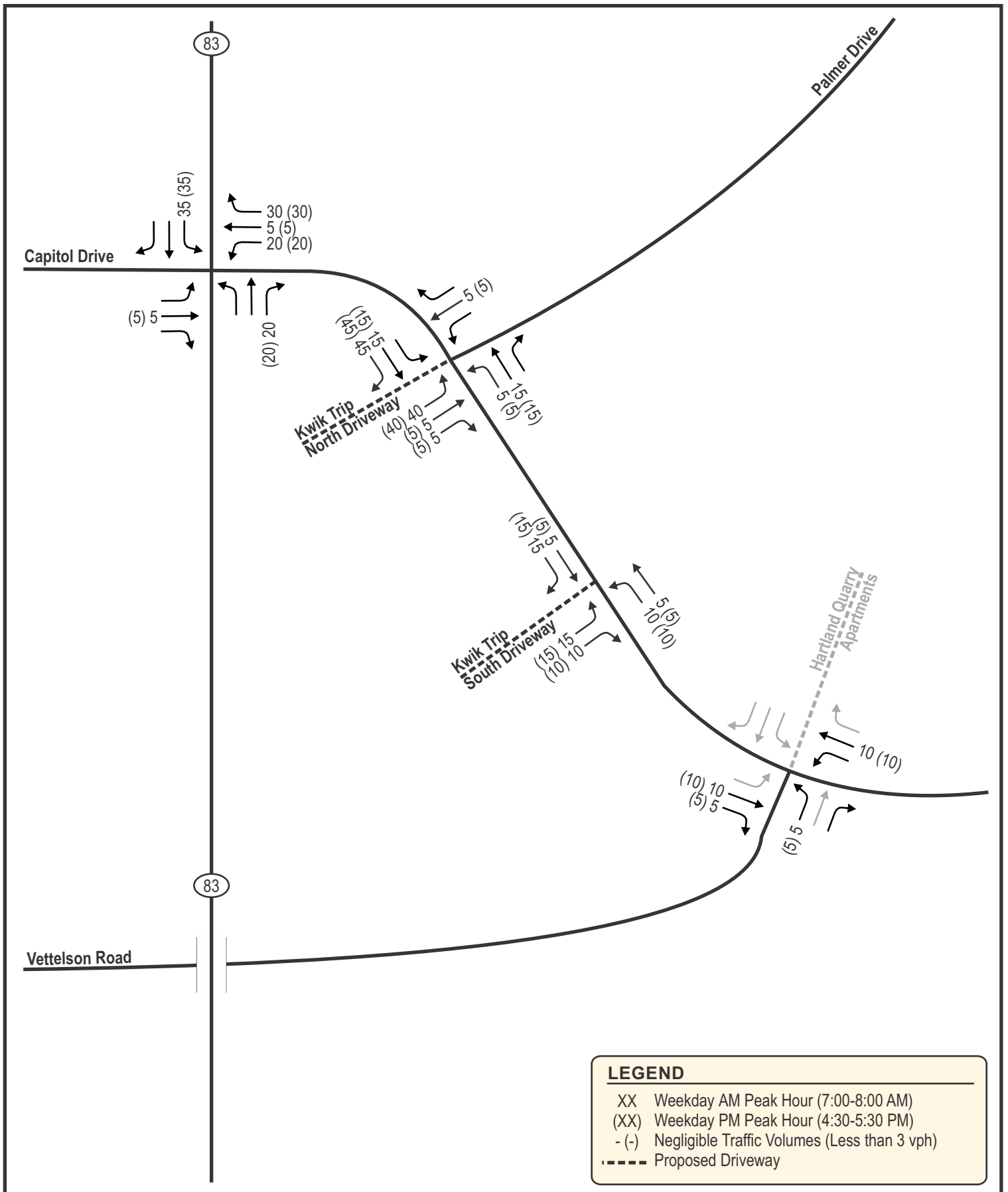
#### TRIP DISTRIBUTION (New Trips)

|                      |             |           |            |            |           |
|----------------------|-------------|-----------|------------|------------|-----------|
| W. on Capitol Drive  | 5%          | 0         | 5          | 10         | 5         |
| E. on Capitol Drive  | 20%         | 10        | 25         | 25         | 15        |
| N. on STH 83         | 45%         | 20        | 55         | 60         | 35        |
| S. on STH 83         | 25%         | 10        | 30         | 35         | 20        |
| N. on Palmer Drive   | 0%          | 0         | 0          | 0          | 0         |
| W. on Vettelson Road | 5%          | 0         | 5          | 5          | 5         |
|                      | <b>100%</b> | <b>40</b> | <b>120</b> | <b>135</b> | <b>80</b> |



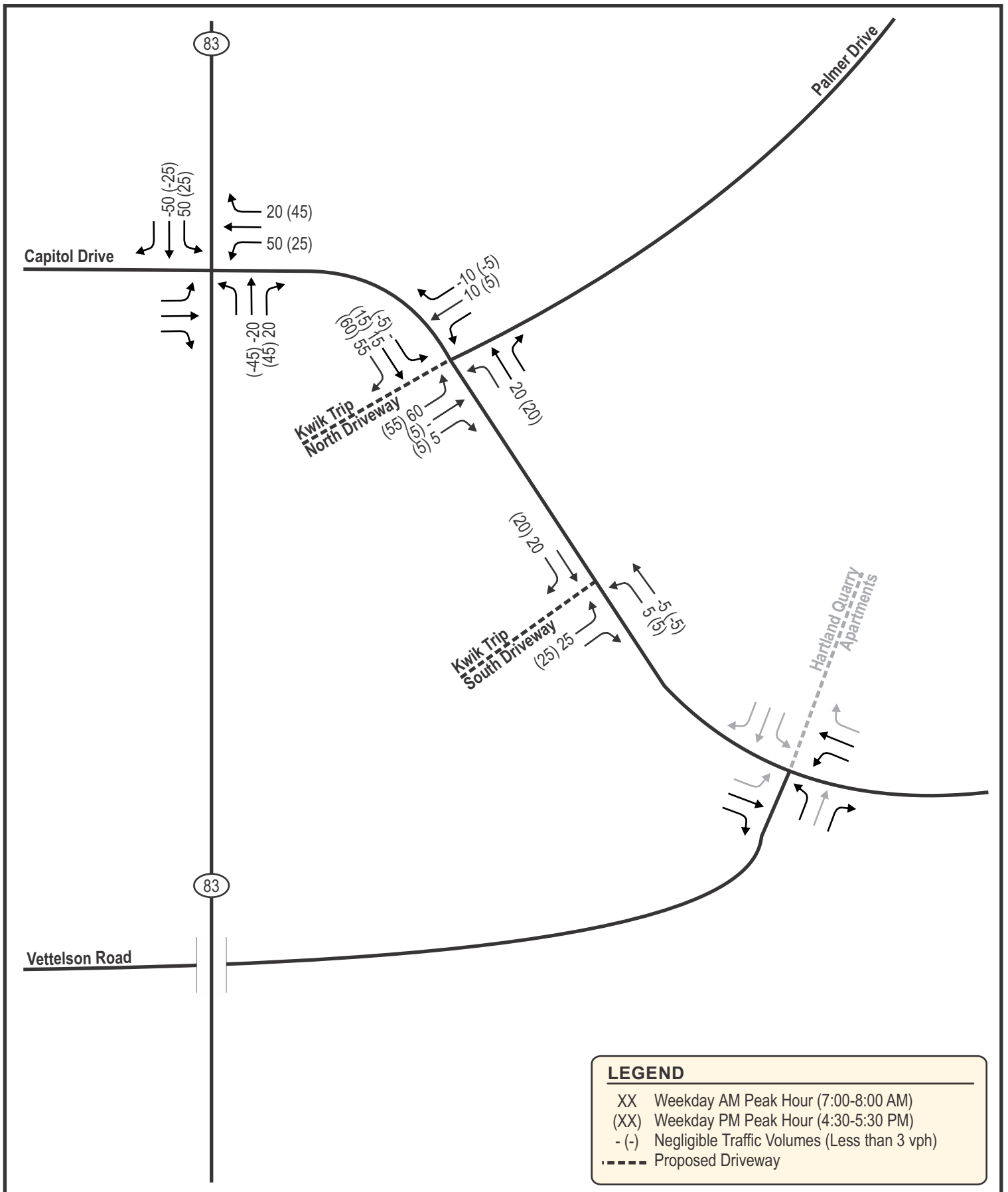
**LEGEND**

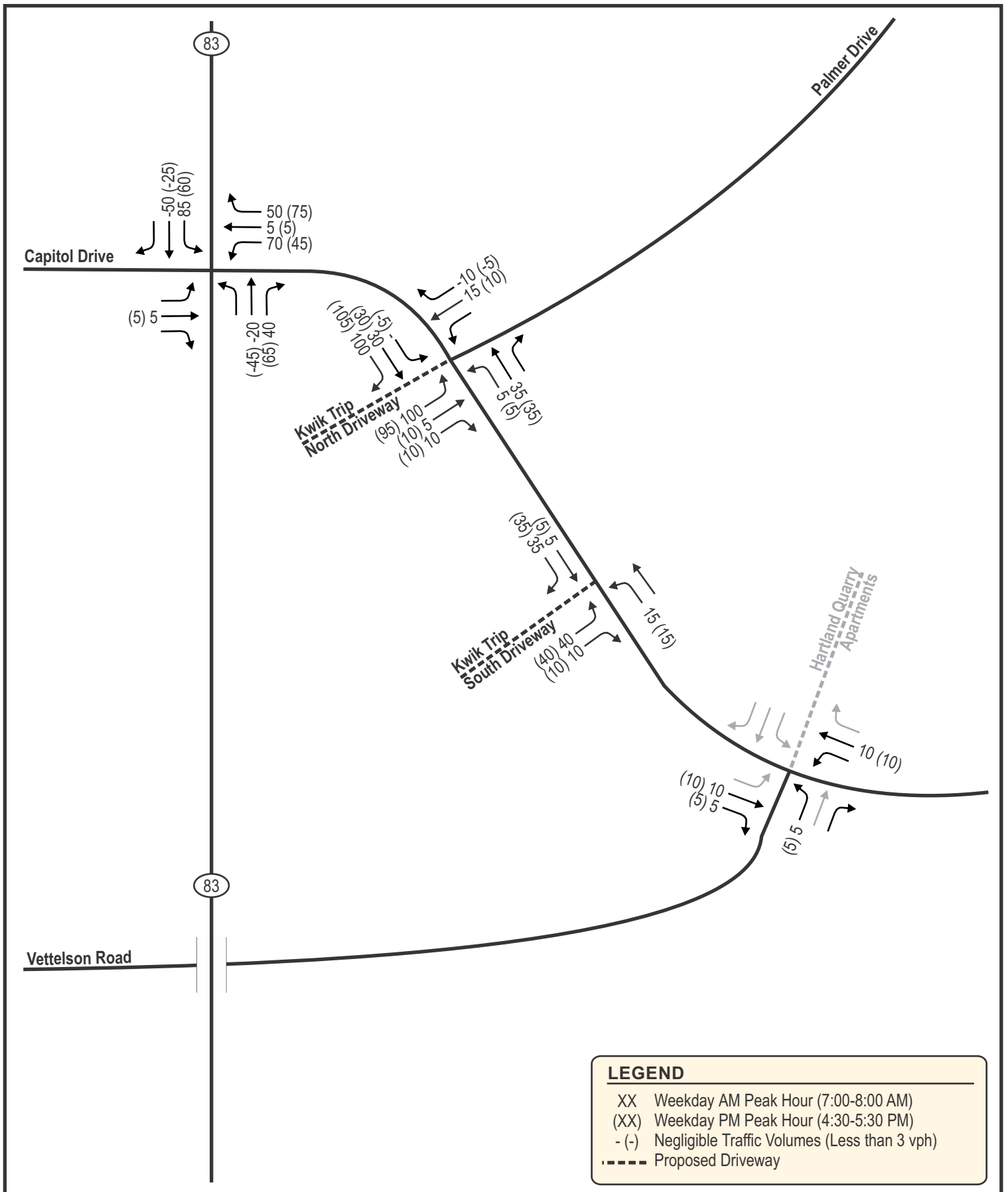
- Trip Distribution - Kwik Trip
- Trip Distribution - Hartland Quarry Apartments

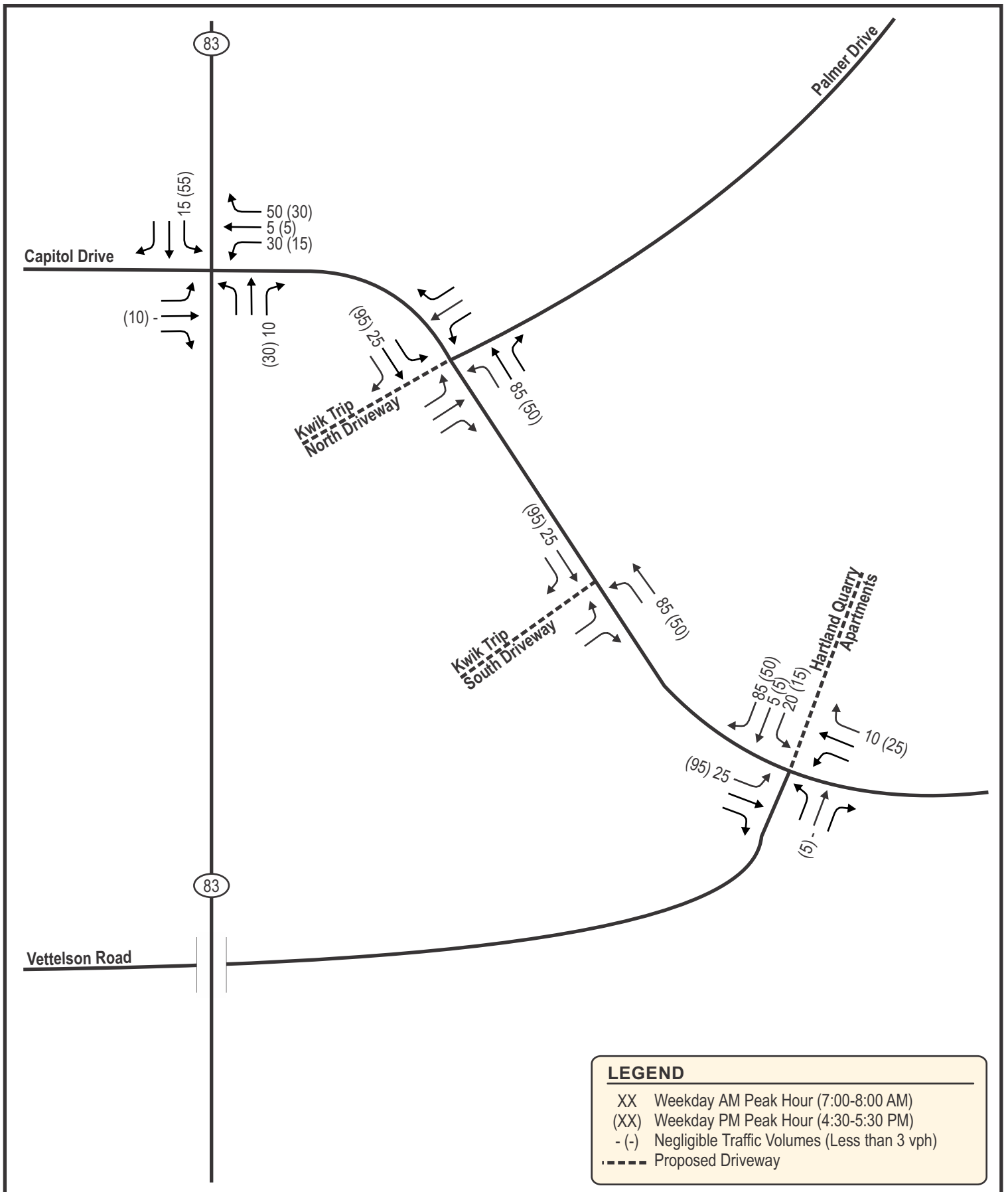


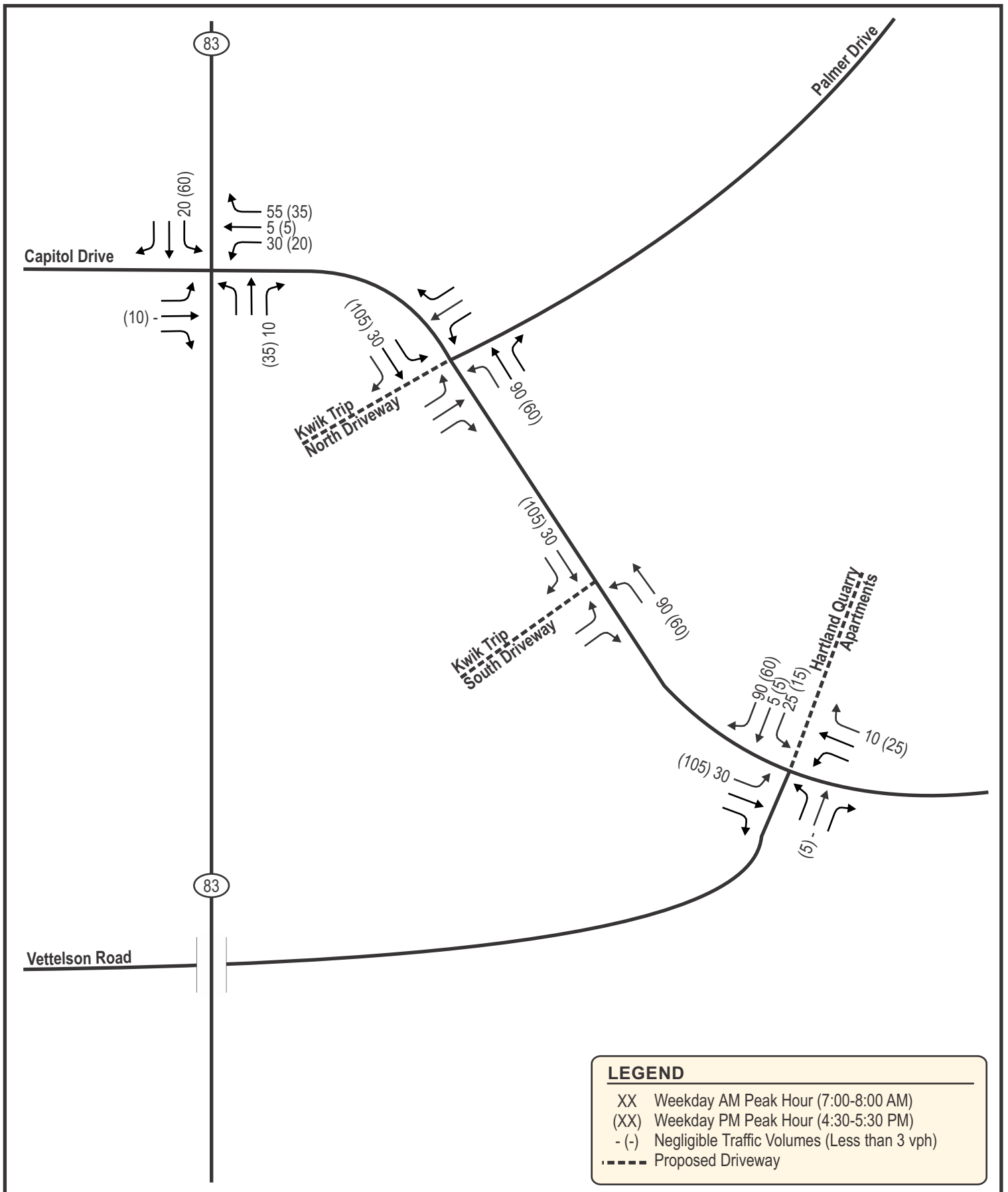
**LEGEND**

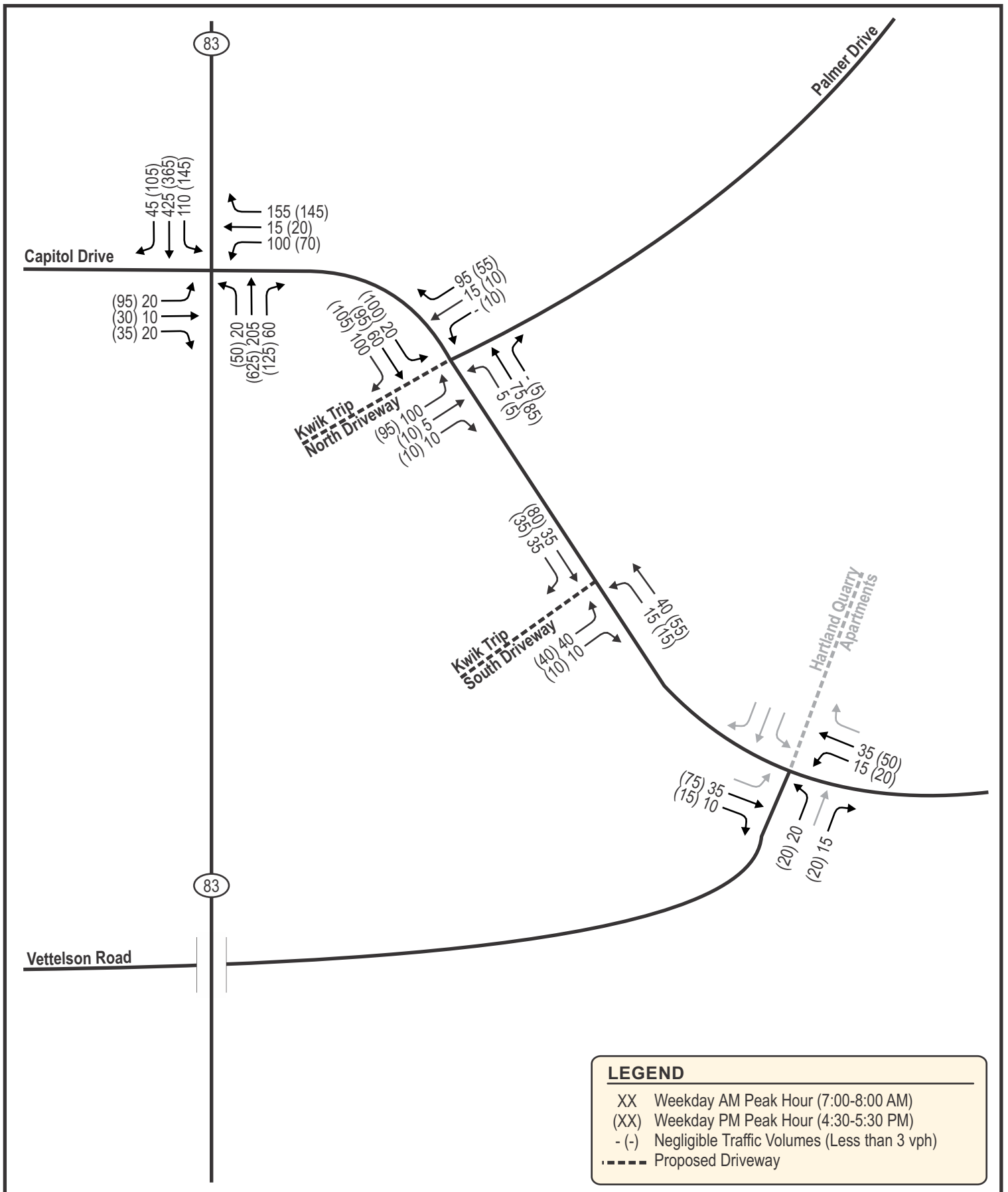
- XX Weekday AM Peak Hour (7:00-8:00 AM)
- (XX) Weekday PM Peak Hour (4:30-5:30 PM)
- (-) Negligible Traffic Volumes (Less than 3 vph)
- Proposed Driveway

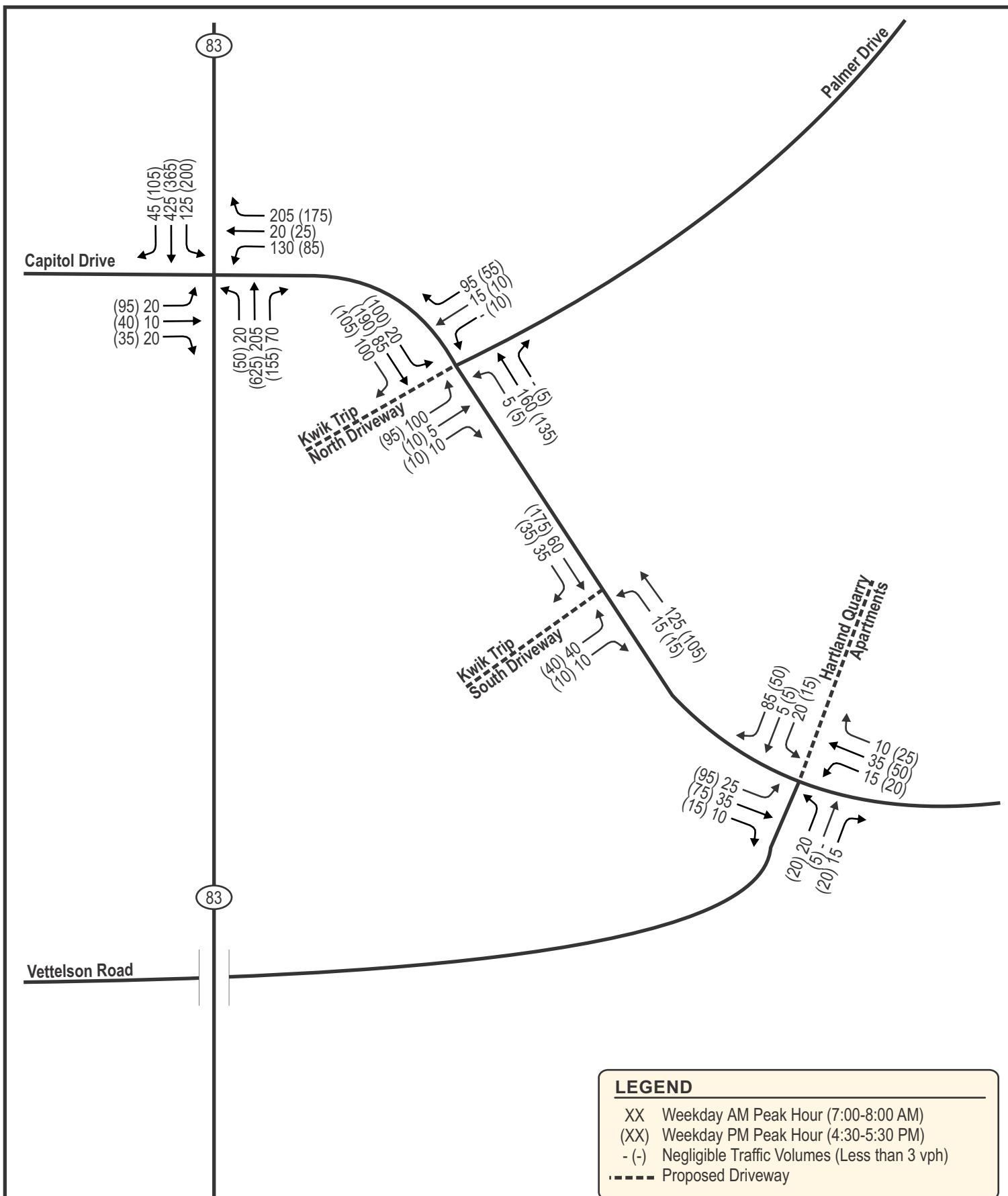


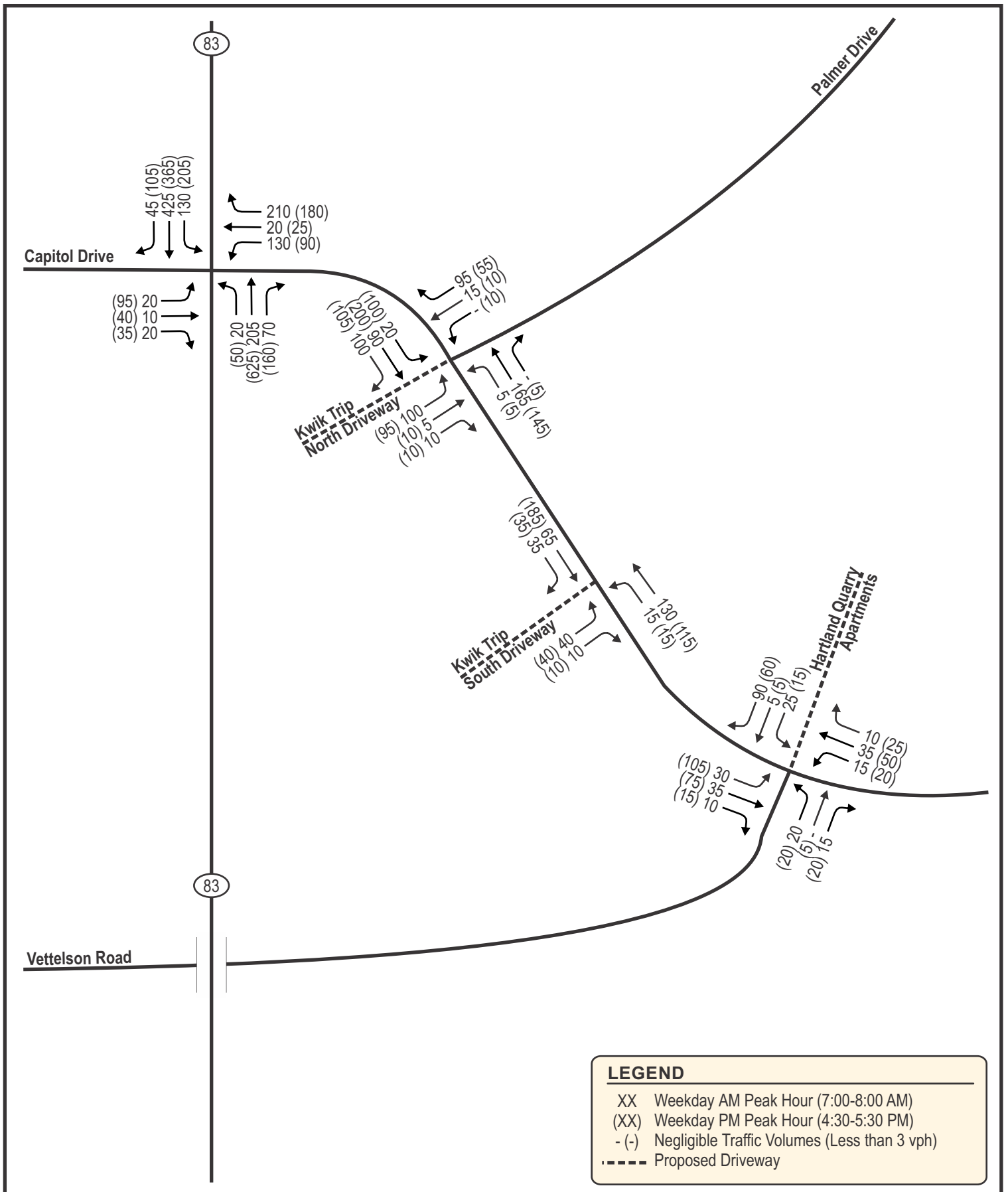












## CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS

### PART A – SITE ACCESS

Two access drives are proposed for the Kwik Trip development. Based on intersection sight distance analyses ([Chapter V, Part E](#)), there is not enough visibility to the left of the driveway to allow for safe right-out or left-in movements. There is enough visibility to the right of the driveway for right-out movements, but the limited visibility to the left (due to the curve, hill, trees, and bushes) may make this movement unsafe (as drivers would need to look in both directions before turning). For full-access turning movements, at the Kwik Trip north driveway, it is recommended that the hill, trees, and bushes in the southeast corner of the STH 83/Capitol Drive intersection be cleared and leveled. Since the STH 83 intersection is close to the Kwik Trip north driveway, and may not provide adequate sight distance for truck exits, it is recommended that this driveway be signed “No Trucks” at the exit.

If the tree line along Three Leaf Partners development property fronting Capitol Drive is removed, then there is enough visibility for full-access turning movements to and from the proposed Kwik Trip south driveway and the Hartland Quarry Apartments driveway.

The proposed traffic volumes do not warrant exclusive left or right-turn lanes for any of the proposed development driveways to Capitol Drive, as the operating speeds and background traffic are relatively low. A separate right-turn lane is recommended at the Kwik Trip north driveway, however, to provide better separation of through and turning traffic around the curve on Capitol Drive. The results of the left-turn and right-turn warrant analyses are in [Appendix A](#).

### PART B – CAPACITY/LEVEL OF SERVICE ANALYSIS

The Year 2023 Build traffic volumes were evaluated with the same geometrics and traffic control at the existing study intersections as the Year 2023 Background traffic volumes. All proposed driveways were evaluated with full-access turning movements and stop sign control on the driveway approaches. The Kwik Trip north driveway was evaluated with a separate eastbound right-turn lane on Capitol Drive. To satisfy the Village of Hartland’s interest, roundabout control was evaluated at the Capitol Drive intersections with the Kwik Trip south driveway and Vettelson Road/Hartland Quarry Apartments driveway with the Year 2023 Full Build traffic volumes.

The peak hour operating conditions for each Year 2023 Build condition are shown on the following exhibits. The analysis worksheets for all three volume scenarios are in [Appendix C](#).

- [Exhibit 5-3](#): Year 2023 Build Traffic Capacity/LOS Analysis – Initial Buildout: Kwik Trip Only
- [Exhibit 5-4](#): Year 2023 Build Traffic Capacity/LOS Analysis – Interim Buildout: Kwik Trip + 400 Apartment Units
- [Exhibit 5-5](#): Year 2023 Build Traffic Capacity/LOS Analysis – Full Buildout: Kwik Trip + 450 Apartment Units

Based on the analysis, all traffic movements at the study intersections operate acceptably at LOS D or better during the peak hours through full buildout of the proposed Kwik Trip and Hartland Quarry Apartments developments. Relatively low increases in delays and queues are expected through each buildout phase. With stop sign control, the Capitol Drive intersections with the Kwik Trip south driveway and Vettelson Road/Hartland Quarry Apartments driveway operate at LOS B or better during the peak hours. With roundabout control (single lane roundabout, single-lane approaches), all movements at these intersections operate at LOS A during the peak hours. Although roundabout control results in low delays and queues at these intersections, they are

considerably more costly to construct and maintain, and require a greater amount of right-of-way than stop sign control. Therefore, roundabout control is not recommended as a traffic control option in this study.

### **PART C – QUEUEING ANALYSIS**

The 95<sup>th</sup> percentile queues for each lane group are shown on the LOS tables for each traffic volume scenario. Based on this analysis, no turn lane extensions are recommended at the study intersections.

### **PART D – PEDESTRIAN, BICYCLE AND MULTI-USE TRAIL CONSIDERATIONS**

There are no pedestrian or bicycle facilities in the study area. The Village of Hartland has indicated that they would like the existing sidewalk on the north side of Capitol Drive to be extended westward to connect with STH 83. They would also like pedestrian connectivity between the Kwik Trip site and a future sidewalk along the north side of Capitol Drive.

To satisfy the Village's interests, it is recommended that Three Leaf Partners extend the sidewalk on the north side of Capitol Drive westward through the limits of the property. It is recommended that the Village of Hartland continue the sidewalk westward across Palmer Drive to STH 83. It is recommended that Kwik Trip provide pedestrian connection between the Kwik Trip site and the future sidewalk on Capitol Drive. The pedestrian connection is recommended at the proposed Kwik Trip south driveway.

### **PART E – SPEED CONSIDERATIONS/SIGHT DISTANCE**

A sight distance evaluation was completed for the proposed Kwik Trip driveways and Hartland Quarry Apartment driveway to Capitol Drive. Driveways should be designed for intersection sight distance (ISD) in accordance with the latest edition of the American Association of State Highway Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets* and on sight distance requirements in the WisDOT *Facilities Development Manual* (FDM). With truck fueling positions proposed for the Kwik Trip site, a WB truck was selected as the design vehicle for the ISD evaluations at the Kwik Trip driveways. A single-unit (SU) truck was selected as the design vehicle for the Hartland Quarry Apartments driveway.

The ISD for the proposed driveways were calculated using the design speed (30 mph) and the cross-section widths (through and turn lanes present at each location) on Capitol Drive. The ISD calculation worksheets are in [Appendix A](#).

#### **E1. Capitol Drive & Kwik Trip North Driveway ISD Evaluation**

The ISD for the Kwik Trip north driveway is shown on [Exhibit 5-27A](#). As shown, the curve and hill, bushes, and trees on Capitol Drive, just north of the Kwik Trip driveway blocks visibility for traffic making a right-turn exit out of the driveway. The blocked area would need to be leveled and cleared to achieve the required visibility for passenger cars to make this movement (there would not be enough visibility for right-turn exits for WB trucks).

Due to the curve, the stopping sight distance (SSD) for right-turn inbound movements was evaluated. Only minor clearing of the elevation and bushes would be needed to achieve the 200 feet of SSD required for right-turn inbound movements.

*Recommendation: level and clear the land in the southeast corner of the STH 83/Capitol Drive intersection for full-access turning movements at the Kwik Trip north driveway. Install "No Trucks" sign at the Kwik Trip north driveway exit.*

## **E2. Capitol Drive & Kwik Trip South Driveway ISD Evaluation**

The ISD for the Kwik Trip south driveway is shown on [Exhibit 5-27B](#). At this location, there is enough visibility for traffic to make a right-turn exit out of the driveway (looking left). The tree line along Capitol Drive on the Hartland Quarry Apartments site blocks visibility for left turn exits (looking right) from the driveway. These trees would need to be removed for full access turning movements out of the driveway.

*Recommendation: remove the tree line on the Hartland Quarry Apartments site for full-access turning movements at the Kwik Trip south driveway.*

## **E2. Capitol Drive & Hartland Quarry Apartments ISD Evaluation**

The ISD for the Hartland Quarry Apartments driveway is shown on [Exhibit 5-27C](#). Due to the tree line around the curve along Capitol Drive, there is not enough visibility for traffic to make right-turn or left-turn exits out of the driveway (looking left). These trees would need to be removed for full access turning movements out of the driveway.

*Recommendation: remove the tree line on the Hartland Quarry Apartments site for full-access turning movements at the Hartland Quarry Apartments driveway.*

## **PART F – TRAFFIC CONTROL NEEDS**

The Capitol Drive intersection with STH 83 operates with traffic signal control that is coordinated with adjacent signals along STH 83. No changes to the traffic control or signal timing are recommended in this study.

The remaining study intersections on Capitol Drive operate with stop sign control on the minor street/proposed driveway approaches. No changes to this traffic control are recommended in this study.

## **PART G – SIGNAL & AWSC WARRANT ANALYSES**

Traffic signal warrant and all-way stop control warrants were evaluated at the Capitol Drive intersection with Vettelson Road/Hartland Quarry Apartments driveway to determine if alternative traffic control would be needed at these intersections. With Year 2023 Full Build traffic volumes and two-way stop control, the intersection operates at LOS B or better during the peak hours. The traffic signal and all-way stop control warrant analysis worksheets are in [Appendix A](#).

### **G1. Traffic Signal Warrant**

Traffic signal warrant studies are based on traffic volume warrants from the 2009 *Manual on Uniform Traffic Control Devices* (MUTCD). Chapter 4C of the MUTCD outlines the standards for determining the need for traffic signals at a particular location. Warrant 1, Eight-Hour Vehicular Volume, Warrant 2, Four-Hour Vehicular Volume, and Warrant 3, Peak-Hour Volume was evaluated in this study.

MUTCD Warrants 1, 2, and 3 were compared to hourly traffic volumes that include the existing hourly traffic volume counts plus additional hourly traffic expected from the proposed development (using ITE hourly distribution percentages for each different land use on site). The following parameters form the basis of the signal warrant analysis:

- Capitol Drive identified as the major street, Vettelson Road and the Hartland Quarry Apartments driveway identified as the minor street.
- Mainline speed limit of 25 mph (<40 mph); Warrant volume thresholds at 100%
- Separate northbound right-turn lane; 0% minor street right-turn volumes

With these parameters, none of the MUTCD signal warrants are expected to be met. All traffic volumes would need to increase more than 200% to meet signal warrant volume thresholds.

**G2. All-Way Stop Control Warrant**

The all-way stop control warrants were also evaluated based on the procedures in the MUTCD. All-way stop control warrants are not met at the Capitol Drive intersection with Vettelson Road/Hartland Quarry Apartments driveway with the Year 2023 Full Build traffic volumes. Volumes would need to increase by up to 100 vehicles on the mainline and 100 vehicles on the minor streets for at least eight hours of the day in order to meet all-way stop control warrants.

**Initial Buildout (Kwik Trip Only) Traffic Peak Hour Operating Conditions**  
**Existing Transportation System + New Driveway Approaches**

| Intersection                                                                                       | Peak Hour | Metric | Level of Service (LOS) per Movement by Approach |      |      |           |      |      |            |      |      |            |      |      | I/S LOS & Delay |
|----------------------------------------------------------------------------------------------------|-----------|--------|-------------------------------------------------|------|------|-----------|------|------|------------|------|------|------------|------|------|-----------------|
|                                                                                                    |           |        | Eastbound                                       |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |                 |
|                                                                                                    |           |        | ↗                                               | →    | ↘    | ↙         | ←    | ↖    | ↖          | ↑    | ↗    | ↘          | ↓    | ↙    |                 |
| Node 100: Capitol Drive (E/W) & STH 83 (N/S)<br>Traffic Signal Control                             | Lanes->   |        | 1                                               | 1    | 1    | 1         | 1    | 1    | 1          | 2    | 1    | 1          | 2    | 1    |                 |
|                                                                                                    | AM        | LOS    | D                                               | C    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    | B               |
|                                                                                                    |           | Delay  | 36                                              | 34   | 35   | 39        | 35   | 38   | 5          | 6    | 6    | 4          | 6    | 5    | 13              |
|                                                                                                    |           | v/c    | 0.12                                            | 0.06 | 0.09 | 0.55      | 0.09 | 0.65 | 0.05       | 0.13 | 0.05 | 0.18       | 0.25 | 0.04 |                 |
|                                                                                                    |           | Queue  | 30'                                             | 20'  | 20'  | 100'      | 25'  | 95'  | 10'        | 50'  | 25'  | 35'        | 95'  | 20'  |                 |
|                                                                                                    | PM        | LOS    | D                                               | D    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    | B               |
|                                                                                                    |           | Delay  | 40                                              | 36   | 36   | 39        | 36   | 38   | 4          | 7    | 6    | 4          | 6    | 5    | 12              |
|                                                                                                    |           | v/c    | 0.48                                            | 0.15 | 0.13 | 0.35      | 0.10 | 0.54 | 0.07       | 0.29 | 0.08 | 0.26       | 0.17 | 0.07 |                 |
| Queue                                                                                              |           | 100'   | 40'                                             | 35'  | 80'  | 30'       | 95'  | 20'  | 135'       | 40'  | 40'  | 70'        | 35'  |      |                 |
| Node 200: Capitol Drive (E/W) & Palmer Drive/Kwik Trip Driveway (N/S)<br>Stop Sign Control (NB/SB) | Lanes->   |        | 1                                               | 1    | 1    | 1         |      |      | 1          |      |      | 1          |      |      |                 |
|                                                                                                    | AM        | LOS    | A                                               | *    | *    | A         |      |      | B          |      |      | A          |      |      | A               |
|                                                                                                    |           | Delay  | 7                                               | *    | *    | 7         |      |      | 13         |      |      | 9          |      |      | 5               |
|                                                                                                    |           | v/c    | 0.02                                            | *    | *    | 0.00      |      |      | 0.24       |      |      | 0.15       |      |      |                 |
|                                                                                                    |           | Queue  | 5'                                              | *    | *    | 0'        |      |      | 25'        |      |      | 15'        |      |      |                 |
|                                                                                                    | PM        | LOS    | A                                               | *    | *    | A         |      |      | C          |      |      | B          |      |      | A               |
|                                                                                                    |           | Delay  | 7                                               | *    | *    | 7         |      |      | 15         |      |      | 10         |      |      | 5               |
|                                                                                                    |           | v/c    | 0.08                                            | *    | *    | 0.00      |      |      | 0.28       |      |      | 0.12       |      |      |                 |
| Queue                                                                                              |           | 5'     | *                                               | *    | 0'   |           |      | 30'  |            |      | 10'  |            |      |      |                 |
| Node 300: Capitol Drive (E/W) & Kwik Trip Driveway (N/S)<br>Stop Sign Control (NB)                 | Lanes->   |        | -                                               | 1    |      | 1         |      | -    | 1          |      |      | -          |      |      |                 |
|                                                                                                    | AM        | LOS    | -                                               | *    |      | A         |      | -    | A          |      |      | -          |      |      | A               |
|                                                                                                    |           | Delay  | -                                               | *    |      | 7         |      | -    | 9          |      |      | -          |      |      | 3               |
|                                                                                                    |           | v/c    | -                                               | *    |      | 0.01      |      | -    | 0.07       |      |      | -          |      |      |                 |
|                                                                                                    |           | Queue  | -                                               | *    |      | 0'        |      | -    | 5'         |      |      | -          |      |      |                 |
|                                                                                                    | PM        | LOS    | -                                               | *    |      | A         |      | -    | A          |      |      | -          |      |      | A               |
|                                                                                                    |           | Delay  | -                                               | *    |      | 7         |      | -    | 9          |      |      | -          |      |      | 2               |
|                                                                                                    |           | v/c    | -                                               | *    |      | 0.01      |      | -    | 0.07       |      |      | -          |      |      |                 |
| Queue                                                                                              |           | -      | *                                               |      | 0'   |           | -    | 5'   |            |      | -    |            |      |      |                 |
| Node 400: Capitol Drive (E/W) & Vettelson Road(N/S)<br>Stop Sign Control (NB)                      | Lanes->   |        | -                                               | 1    |      | 1         |      | 1    | -          | 1    | -    | 1          | -    | -    |                 |
|                                                                                                    | AM        | LOS    | -                                               | *    |      | A         |      | *    | -          | A    | -    | A          | -    | -    | A               |
|                                                                                                    |           | Delay  | -                                               | *    |      | 7         |      | *    | -          | 9    | -    | 8          | -    | -    | 3               |
|                                                                                                    |           | v/c    | -                                               | *    |      | 0.01      |      | *    | -          | 0.03 | -    | 0.02       | -    | -    |                 |
|                                                                                                    |           | Queue  | -                                               | *    |      | 0'        |      | *    | -          | 5'   | -    | 5'         | -    | -    |                 |
|                                                                                                    | PM        | LOS    | -                                               | *    |      | A         |      | *    | -          | A    | -    | A          | -    | -    | A               |
|                                                                                                    |           | Delay  | -                                               | *    |      | 7         |      | *    | -          | 9    | -    | 8          | -    | -    | 2               |
|                                                                                                    |           | v/c    | -                                               | *    |      | 0.02      |      | *    | -          | 0.03 | -    | 0.03       | -    | -    |                 |
| Queue                                                                                              |           | -      | *                                               |      | 0'   |           | *    | -    | 5'         | -    | 5'   | -          | -    |      |                 |

**Interim Buildout (Kwik Trip + 400 MF Units) Traffic Peak Hour Operating Conditions**  
**Existing Transportation System + New Driveway Approaches**

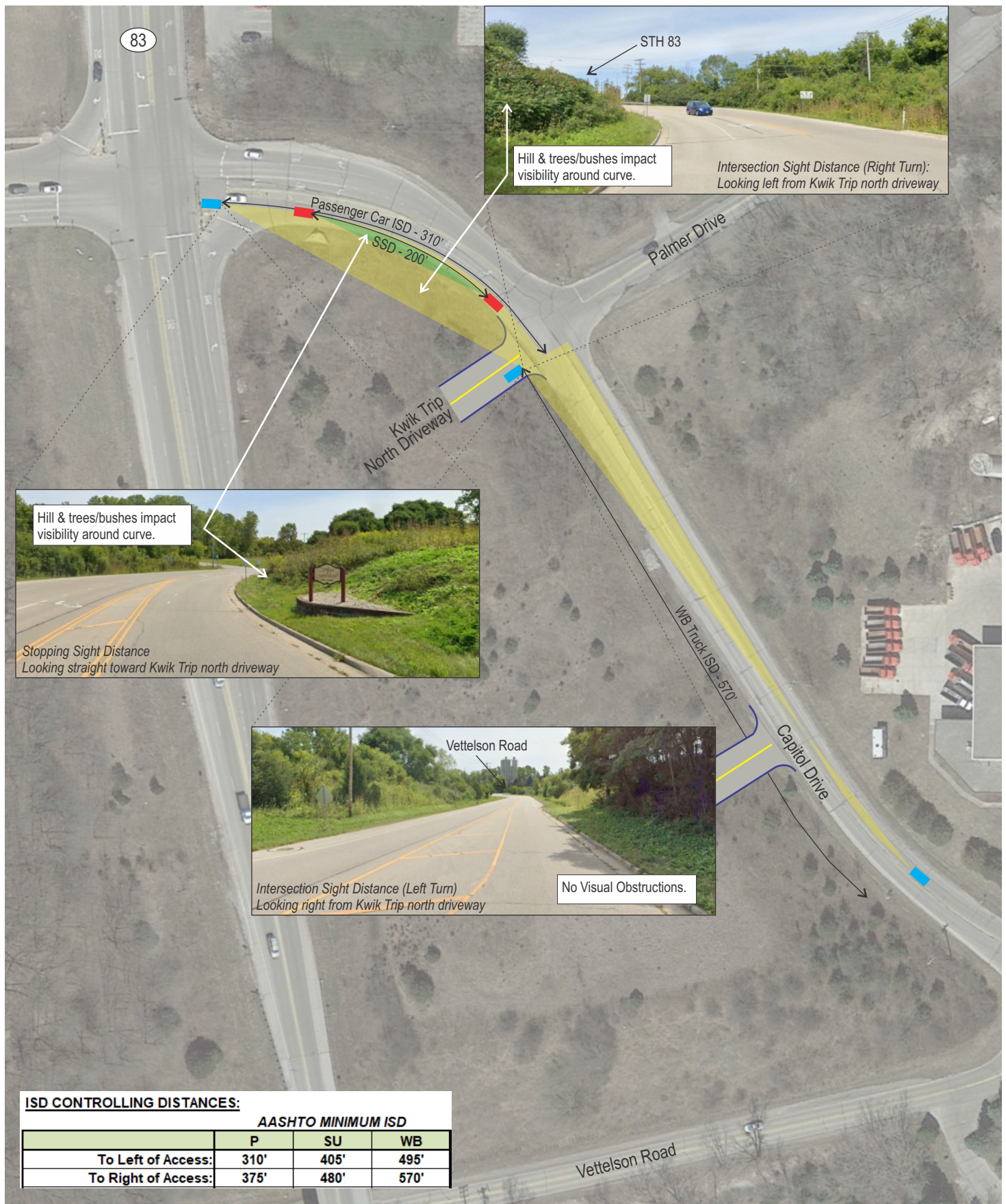
| Intersection                                                                                                            | Peak Hour | Metric | Level of Service (LOS) per Movement by Approach |      |      |           |      |      |            |      |      |            |      |      | I/S<br>LOS &<br>Delay |
|-------------------------------------------------------------------------------------------------------------------------|-----------|--------|-------------------------------------------------|------|------|-----------|------|------|------------|------|------|------------|------|------|-----------------------|
|                                                                                                                         |           |        | Eastbound                                       |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |                       |
|                                                                                                                         |           |        | ↗                                               | →    | ↘    | ↙         | ←    | ↖    | ↖          | ↑    | ↗    | ↘          | ↓    | ↙    |                       |
| Node 100: Capitol Drive (E/W) &<br>STH 83 (N/S)<br><i>Traffic Signal Control</i>                                        | Lanes->   |        | 1                                               | 1    | 1    | 1         | 1    | 1    | 1          | 2    | 1    | 1          | 2    | 1    | 15                    |
|                                                                                                                         | AM        | LOS    | C                                               | C    | C    | D         | C    | D    | A          | A    | A    | A          | A    | A    |                       |
|                                                                                                                         |           | Delay  | 34                                              | 32   | 32   | 38        | 32   | 37   | 6          | 8    | 7    | 5          | 7    | 6    |                       |
|                                                                                                                         |           | v/c    | 0.11                                            | 0.05 | 0.07 | 0.61      | 0.09 | 0.70 | 0.05       | 0.14 | 0.07 | 0.22       | 0.26 | 0.04 |                       |
|                                                                                                                         |           | Queue  | 30'                                             | 15'  | 20'  | 125'      | 30'  | 120' | 10'        | 55'  | 30'  | 45'        | 95'  | 20'  |                       |
|                                                                                                                         | PM        | LOS    | D                                               | D    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    | 13                    |
|                                                                                                                         |           | Delay  | 40                                              | 36   | 36   | 40        | 35   | 39   | 4          | 7    | 6    | 5          | 6    | 5    |                       |
|                                                                                                                         |           | v/c    | 0.48                                            | 0.20 | 0.13 | 0.43      | 0.12 | 0.63 | 0.07       | 0.29 | 0.10 | 0.36       | 0.17 | 0.07 |                       |
| Queue                                                                                                                   |           | 100'   | 50'                                             | 35'  | 90'  | 35'       | 110' | 20'  | 145'       | 55'  | 55'  | 75'        | 35'  |      |                       |
| Node 200: Capitol Drive (E/W) &<br>Palmer Drive/Kwik Trip Driveway<br>(N/S)<br><i>Stop Sign Control (NB/SB)</i>         | Lanes->   |        | 1                                               | 1    | 1    | 1         |      |      | 1          |      |      | 1          |      |      | 5                     |
|                                                                                                                         | AM        | LOS    | A                                               | *    | *    | A         |      |      | C          |      |      | B          |      |      |                       |
|                                                                                                                         |           | Delay  | 7                                               | *    | *    | 7         |      |      | 15         |      |      | 10         |      |      |                       |
|                                                                                                                         |           | v/c    | 0.02                                            | *    | *    | 0.01      |      |      | 0.30       |      |      | 0.18       |      |      |                       |
|                                                                                                                         |           | Queue  | 5'                                              | *    | *    | 0'        |      |      | 30'        |      |      | 15'        |      |      |                       |
|                                                                                                                         | PM        | LOS    | A                                               | *    | *    | A         |      |      | C          |      |      | B          |      |      | 5                     |
|                                                                                                                         |           | Delay  | 7                                               | *    | *    | 7         |      |      | 20         |      |      | 11         |      |      |                       |
|                                                                                                                         |           | v/c    | 0.08                                            | *    | *    | 0.01      |      |      | 0.36       |      |      | 0.14       |      |      |                       |
| Queue                                                                                                                   |           | 10'    | *                                               | *    | 0'   |           |      | 40'  |            |      | 15'  |            |      |      |                       |
| Node 300: Capitol Drive (E/W) &<br>Kwik Trip Driveway (N/S)<br><i>Stop Sign Control (NB)</i>                            | Lanes->   |        | -                                               | 1    |      | 1         |      | -    | 1          |      | -    |            |      | 2    |                       |
|                                                                                                                         | AM        | LOS    | -                                               | *    |      | A         |      | -    | B          |      | -    |            |      |      |                       |
|                                                                                                                         |           | Delay  | -                                               | *    |      | 7         |      | -    | 10         |      | -    |            |      |      |                       |
|                                                                                                                         |           | v/c    | -                                               | *    |      | 0.01      |      | -    | 0.08       |      | -    |            |      |      |                       |
|                                                                                                                         |           | Queue  | -                                               | *    |      | 0'        |      | -    | 10'        |      | -    |            |      |      |                       |
|                                                                                                                         | PM        | LOS    | -                                               | *    |      | A         |      | -    | B          |      | -    |            |      | 1    |                       |
|                                                                                                                         |           | Delay  | -                                               | *    |      | 7         |      | -    | 11         |      | -    |            |      |      |                       |
|                                                                                                                         |           | v/c    | -                                               | *    |      | 0.01      |      | -    | 0.08       |      | -    |            |      |      |                       |
| Queue                                                                                                                   |           | -      | *                                               |      | 0'   |           | -    | 10'  |            | -    |      |            |      |      |                       |
| Node 400: Capitol Drive (E/W) &<br>Vettelson Road/Hartland Quarry<br>Driveway (N/S)<br><i>Stop Sign Control (NB/SB)</i> | Lanes->   |        | 1                                               |      |      | 1         |      | 1    |            | 1    |      | 1          |      |      | 6                     |
|                                                                                                                         | AM        | LOS    | A                                               |      |      | A         |      | *    |            | B    |      | A          |      | A    |                       |
|                                                                                                                         |           | Delay  | 7                                               |      |      | 7         |      | *    |            | 11   |      | 8          |      | 9    |                       |
|                                                                                                                         |           | v/c    | 0.02                                            |      |      | 0.01      |      | *    |            | 0.05 |      | 0.02       |      | 0.16 |                       |
|                                                                                                                         |           | Queue  | 5'                                              |      |      | 0'        |      | *    |            | 5'   |      | 5'         |      | 15'  |                       |
|                                                                                                                         | PM        | LOS    | A                                               |      |      | A         |      | *    |            | B    |      | A          |      | B    | 5                     |
|                                                                                                                         |           | Delay  | 7                                               |      |      | 7         |      | *    |            | 14   |      | 8          |      | 10   |                       |
|                                                                                                                         |           | v/c    | 0.08                                            |      |      | 0.02      |      | *    |            | 0.07 |      | 0.03       |      | 0.11 |                       |
| Queue                                                                                                                   |           | 10'    |                                                 |      | 0'   |           | *    |      | 5'         |      | 5'   |            | 10'  |      |                       |

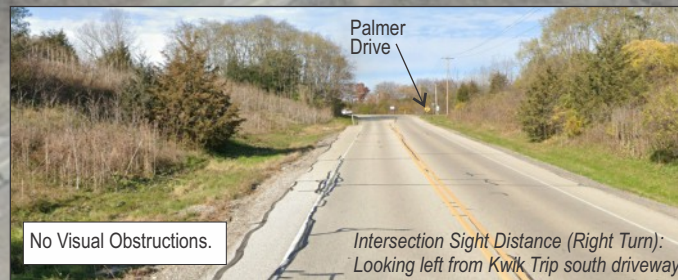
**Full Buildout (Kwik Trip + 450 MF Units) Traffic Peak Hour Operating Conditions**  
**Existing Transportation System + New Driveway Approaches**

| Intersection                                                                                               | Peak Hour | Metric  | Level of Service (LOS) per Movement by Approach |      |      |           |      |      |            |      |      |            |      |      | I/S<br>LOS & Delay |        |
|------------------------------------------------------------------------------------------------------------|-----------|---------|-------------------------------------------------|------|------|-----------|------|------|------------|------|------|------------|------|------|--------------------|--------|
|                                                                                                            |           |         | Eastbound                                       |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |                    |        |
|                                                                                                            |           |         | ↗                                               | →    | ↘    | ↙         | ←    | ↖    | ↖          | ↑    | ↗    | ↘          | ↓    | ↙    |                    |        |
| Node 100: Capitol Drive (E/W) & STH 83 (N/S)<br>Traffic Signal Control                                     | AM        | Lanes-> | 1                                               | 1    | 1    | 1         | 1    | 1    | 1          | 2    | 1    | 1          | 2    | 1    | B<br>15            |        |
|                                                                                                            |           | LOS     | C                                               | C    | C    | D         | C    | D    | A          | A    | A    | A          | A    | A    |                    |        |
|                                                                                                            |           | Delay   | 34                                              | 32   | 32   | 38        | 32   | 37   | 6          | 8    | 7    | 5          | 7    | 6    |                    |        |
|                                                                                                            |           | v/c     | 0.11                                            | 0.05 | 0.07 | 0.61      | 0.09 | 0.72 | 0.05       | 0.14 | 0.07 | 0.22       | 0.26 | 0.04 |                    |        |
|                                                                                                            | PM        | Queue   | 30'                                             | 15'  | 20'  | 125'      | 30'  | 120' | 10'        | 55'  | 30'  | 45'        | 95'  | 20'  | B<br>13            |        |
|                                                                                                            |           | LOS     | D                                               | D    | D    | D         | D    | D    | A          | A    | A    | A          | A    | A    |                    |        |
|                                                                                                            |           | Delay   | 40                                              | 36   | 35   | 40        | 35   | 39   | 4          | 7    | 6    | 5          | 6    | 5    |                    |        |
|                                                                                                            |           | v/c     | 0.48                                            | 0.20 | 0.13 | 0.46      | 0.12 | 0.65 | 0.07       | 0.29 | 0.10 | 0.37       | 0.17 | 0.07 |                    |        |
| Queue                                                                                                      | 100'      | 50'     | 35'                                             | 95'  | 35'  | 115'      | 20'  | 145' | 55'        | 60'  | 75'  | 35'        |      |      |                    |        |
| Node 200: Capitol Drive (E/W) & Palmer Drive/Kwik Trip Driveway (N/S)<br>Stop Sign Control (NB/SB)         | AM        | Lanes-> | 1                                               | 1    | 1    | 1         |      |      | 1          |      |      | 1          |      |      | A<br>5             |        |
|                                                                                                            |           | LOS     | A                                               | *    | *    | A         |      |      | C          |      |      | B          |      |      |                    |        |
|                                                                                                            |           | Delay   | 7                                               | *    | *    | 7         |      |      | 16         |      |      | 10         |      |      |                    |        |
|                                                                                                            |           | v/c     | 0.02                                            | *    | *    | 0.01      |      |      | 0.31       |      |      | 0.18       |      |      |                    |        |
|                                                                                                            | PM        | Queue   | 5'                                              | *    | *    | 0'        |      |      | 35'        |      |      | 20'        |      |      | A<br>5             |        |
|                                                                                                            |           | LOS     | A                                               | *    | *    | A         |      |      | C          |      |      | B          |      |      |                    |        |
|                                                                                                            |           | Delay   | 7                                               | *    | *    | 7         |      |      | 21         |      |      | 12         |      |      |                    |        |
|                                                                                                            |           | v/c     | 0.08                                            | *    | *    | 0.01      |      |      | 0.37       |      |      | 0.14       |      |      |                    |        |
| Queue                                                                                                      | 10'       | *       | *                                               | 0'   |      |           | 45'  |      |            | 15'  |      |            |      |      |                    |        |
| Node 300: Capitol Drive (E/W) & Kwik Trip Driveway (N/S)<br>Stop Sign Control (NB)                         | AM        | Lanes-> | -                                               | 1    |      | 1         |      | -    | 1          |      |      | -          |      |      | A<br>2             |        |
|                                                                                                            |           | LOS     | -                                               | *    |      | A         |      | -    | B          |      |      | -          |      |      |                    |        |
|                                                                                                            |           | Delay   | -                                               | *    |      | 7         |      | -    | 10         |      |      | -          |      |      |                    |        |
|                                                                                                            |           | v/c     | -                                               | *    |      | 0.01      |      | -    | 0.08       |      |      | -          |      |      |                    |        |
|                                                                                                            | PM        | Queue   | -                                               | *    |      | 0'        |      | -    | 10'        |      |      | -          |      |      | A<br>1             |        |
|                                                                                                            |           | LOS     | -                                               | *    |      | A         |      | -    | B          |      |      | -          |      |      |                    |        |
|                                                                                                            |           | Delay   | -                                               | *    |      | 7         |      | -    | 11         |      |      | -          |      |      |                    |        |
|                                                                                                            |           | v/c     | -                                               | *    |      | 0.01      |      | -    | 0.09       |      |      | -          |      |      |                    |        |
| Queue                                                                                                      | -         | *       |                                                 | 0'   |      | -         | 10'  |      |            | -    |      |            |      |      |                    |        |
| Node 400: Capitol Drive (E/W) & Vettelson Road/Hartland Quarry Driveway (N/S)<br>Stop Sign Control (NB/SB) | AM        | Lanes-> | 1                                               |      |      | 1         |      | 1    |            |      | 1    |            | 1    |      |                    | A<br>6 |
|                                                                                                            |           | LOS     | A                                               |      |      | A         |      | B    |            |      | A    |            | A    |      |                    |        |
|                                                                                                            |           | Delay   | 7                                               |      |      | 7         |      | 11   |            |      | 8    |            | 9    |      |                    |        |
|                                                                                                            |           | v/c     | 0.02                                            |      |      | 0.01      |      | 0.05 |            |      | 0.02 |            | 0.18 |      |                    |        |
|                                                                                                            | PM        | Queue   | 5'                                              |      |      | 0'        |      | 5'   |            |      | 5'   |            | 15'  |      |                    | A<br>5 |
|                                                                                                            |           | LOS     | A                                               |      |      | A         |      | B    |            |      | A    |            | B    |      |                    |        |
|                                                                                                            |           | Delay   | 7                                               |      |      | 7         |      | 14   |            |      | 8    |            | 10   |      |                    |        |
|                                                                                                            |           | v/c     | 0.09                                            |      |      | 0.02      |      | 0.07 |            |      | 0.03 |            | 0.13 |      |                    |        |
| Queue                                                                                                      | 10'       |         |                                                 | 0'   |      | 5'        |      |      | 5'         |      | 10'  |            |      |      |                    |        |

**Full Buildout (Kwik Trip + 450 MF Units) Traffic Peak Hour Operating Conditions**  
**Roundabout Options**

| Intersection                                                                                               | Peak Hour | Metric | Level of Service (LOS) per Movement by Approach |     |     |           |     |    |            |    |     |            |     |   | I/S         |
|------------------------------------------------------------------------------------------------------------|-----------|--------|-------------------------------------------------|-----|-----|-----------|-----|----|------------|----|-----|------------|-----|---|-------------|
|                                                                                                            |           |        | Eastbound                                       |     |     | Westbound |     |    | Northbound |    |     | Southbound |     |   | LOS & Delay |
|                                                                                                            |           |        | ↗                                               | →   | ↘   | ↙         | ←   | ↖  | ↖          | ↑  | ↗   | ↘          | ↓   | ↙ |             |
| Node 300: Capitol Drive (E/W) & Kwik Trip Driveway (N/S)<br><i>Roundabout Control</i>                      | Lanes->   |        | 1                                               |     |     | 1         |     |    | 1          |    |     | -          |     |   | A<br>3      |
|                                                                                                            | AM        | LOS    | A                                               |     |     | A         |     |    | A          |    |     | -          |     |   |             |
|                                                                                                            |           | Delay  | 3                                               |     |     | 4         |     |    | 3          |    |     | -          |     |   |             |
|                                                                                                            |           | v/c    | 0.10                                            |     |     | 0.14      |     |    | 0.05       |    |     | -          |     |   |             |
|                                                                                                            |           | PM     | Queue                                           | 10' |     |           | 15' |    |            | 5' |     |            | -   |   |             |
|                                                                                                            | LOS       |        | A                                               |     |     | A         |     |    | A          |    |     | -          |     |   |             |
|                                                                                                            | Delay     |        | 4                                               |     |     | 3         |     |    | 3          |    |     | -          |     |   |             |
|                                                                                                            | v/c       |        | 0.19                                            |     |     | 0.11      |     |    | 0.05       |    |     | -          |     |   |             |
| Node 400: Capitol Drive (E/W) & Vettelson Road/Hartland Quarry Driveway (N/S)<br><i>Roundabout Control</i> | Lanes->   |        | 1                                               |     |     | 1         |     |    | 1          |    |     | 1          |     |   | A<br>3      |
|                                                                                                            | AM        | LOS    | A                                               |     |     | A         |     |    | A          |    |     | A          |     |   |             |
|                                                                                                            |           | Delay  | 3                                               |     |     | 3         |     |    | 3          |    |     | 4          |     |   |             |
|                                                                                                            |           | v/c    | 0.09                                            |     |     | 0.07      |     |    | 0.04       |    |     | 0.13       |     |   |             |
|                                                                                                            |           | PM     | Queue                                           | 10' |     |           | 5'  |    |            | 5' |     |            | 10' |   |             |
|                                                                                                            | LOS       |        | A                                               |     |     | A         |     |    | A          |    |     | A          |     |   |             |
|                                                                                                            | Delay     |        | 4                                               |     |     | 3         |     |    | 3          |    |     | 3          |     |   |             |
|                                                                                                            | v/c       |        | 0.19                                            |     |     | 0.10      |     |    | 0.05       |    |     | 0.08       |     |   |             |
|                                                                                                            | Queue     | 20'    |                                                 |     | 10' |           |     | 5' |            |    | 10' |            |     |   |             |





**ISD CONTROLLING DISTANCES:**

|                     | AASHTO MINIMUM ISD |      |      |
|---------------------|--------------------|------|------|
|                     | P                  | SU   | WB   |
| To Left of Access:  | 290'               | 375' | 465' |
| To Right of Access: | 335'               | 420' | 510' |



## CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

### PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> Edition. Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purposes of this study, LOS D or better was used to define desirable peak hour operating conditions.

*Improvements are for jurisdictional consideration and are not legally binding. The Village of Hartland reserves the right to determine alternative solutions.*

#### A1. Background Traffic Recommendations

The following are recommended to address background traffic (no development) conditions at the study intersections. These recommendations are estimated to be the responsibility of the Village of Hartland:

- Per the Village of Hartland, provide a sidewalk along the north side of Capitol Drive from STH 83 to across Palmer Drive.
- The Village has indicated that westbound traffic on Capitol Drive “cut the corner” when turning onto Vettelson Drive. Historical crashes have not identified any crash pattern due to this movement. It is recommended that the Village explore options to mitigate this issue by constructing a right-turn island, moving stop bars, etc. Sight distance and vehicle turning radii need to be considered in design features prior to construction.

#### A2. Build Traffic Recommendations (Kwik Trip)

##### *Capitol Drive & Kwik Trip North Driveway*

- Clear and level the land in the southeast corner of the STH 83/Capitol Drive intersection to provide adequate sight distance for full-access turning movements into and out of the driveway.
- Install a “No Trucks” sign at the Kwik Trip north driveway exit to Capitol Drive.
- Although not warranted based on traffic volumes, provide a right-turn lane on Capitol Drive to separate the slower-moving right-turn from through traffic traveling eastbound around the curve on Capitol Drive.

##### *Capitol Drive & Kwik Trip South Driveway*

- Clear trees on the Hartland Quarry Apartments site to provide 510 feet of visibility to the right of the Kwik Trip south driveway.
- Construct the driveway with a single entrance and exit lane and stop sign control on the approach to Capitol Drive. Two-way stop control results in low delays and queues at all intersection movements during the peak hours. Roundabout control provides the same, but results in considerable additional cost and right-of-way to implement this alternative. Therefore, it is not a recommended option in this study.
- Per the Village requirements, provide a pedestrian crossing that connects between the Kwik Trip site and a future sidewalk along the north side of Capitol Drive.

### **A3. Build Traffic Recommendations (Hartland Quarry Apartments)**

#### *General*

- Per the Village of Hartland, provide a sidewalk along the north side of Capitol Drive throughout the limits of the Hartland Quarry Apartments property.

#### *Capitol Drive & Hartland Quarry Apartments Driveway*

- Clear trees on the Hartland Quarry Apartments site to provide 375 feet of visibility to the left of the Kwik Trip south driveway and 450 feet of visibility to the right of the Kwik Trip south driveway.
- Construct the driveway with a single entrance and exit lane and stop sign control on the approach to Capitol Drive. Align the driveway across from Vettelson Drive. Two-way stop control results in low delays and queues at all intersection movements during the peak hours. Roundabout control provides the same, but results in considerable additional cost and right-of-way to implement this alternative. Therefore, it is not a recommended option in this study.

### **PART B – CONCLUSION**

The modifications listed above are expected to accommodate traffic through full buildout of the proposed Kwik Trip and Hartland Quarry Apartments development.

# **APPENDIX A**

## **Traffic Counts/Calculation Worksheets**

**Intersection Traffic Counts  
PHF and Percent Heavy Vehicles  
Signal Timings  
Saturation Flow Rate Calculations  
Left and Right-Turn Lane Warrants Worksheets  
Signals and All-Way Stop Control Warrants  
Intersection Sight Distance Calculations**

**3047-HartlandKwik Trip  
Peak Hour Calculations**

**Weekday AM Peak Hour**

| Time    | Capital<br>Vettleson | Capital<br>Palmer | Capital<br>STH 83 | Sums |
|---------|----------------------|-------------------|-------------------|------|
|         | 3/23/2022            | 3/23/2022         | 3/23/2022         |      |
| 6:00 AM | 13                   | 27                | 98                |      |
| 6:15 AM | 17                   | 21                | 126               |      |
| 6:30 AM | 26                   | 39                | 144               |      |
| 6:45 AM | 19                   | 38                | 218               | 786  |
| 7:00 AM | 32                   | 36                | 181               | 897  |
| 7:15 AM | 17                   | 47                | 226               | 1023 |
| 7:30 AM | 25                   | 49                | 258               | 1146 |
| 7:45 AM | 37                   | 58                | 334               | 1300 |
| 8:00 AM | 6                    | 40                | 185               | 1282 |
| 8:15 AM | 21                   | 39                | 225               | 1277 |
| 8:30 AM | 20                   | 37                | 224               | 1226 |
| 8:45 AM | 30                   | 42                | 233               | 1102 |

**Weekday PM Peak Hour**

| Time    | Capital<br>Vettleson | Capital<br>Palmer | Capital<br>STH 83 | Sums |
|---------|----------------------|-------------------|-------------------|------|
|         | 3/21/2022            | 3/21/2022         | 3/21/2022         |      |
| 3:00 PM | 35                   | 60                | 313               |      |
| 3:15 PM | 28                   | 75                | 356               |      |
| 3:30 PM | 43                   | 66                | 406               |      |
| 3:45 PM | 29                   | 54                | 351               | 1816 |
| 4:00 PM | 45                   | 71                | 386               | 1910 |
| 4:15 PM | 50                   | 64                | 341               | 1906 |
| 4:30 PM | 50                   | 66                | 421               | 1928 |
| 4:45 PM | 29                   | 65                | 410               | 1998 |
| 5:00 PM | 49                   | 75                | 427               | 2047 |
| 5:15 PM | 39                   | 79                | 373               | 2083 |
| 5:30 PM | 31                   | 72                | 325               | 1974 |
| 5:45 PM | 41                   | 60                | 292               | 1863 |

# Intersection Traffic Volume Report

| Count Basics                   |                        | Version 2013.J4.1 |                    | Page 1 of 13 |
|--------------------------------|------------------------|-------------------|--------------------|--------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday           | Schools in Session |              |
| Total Number of Hours Counted: | 6                      | Non-Holiday       | No Special Events  |              |

## Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **STH 83 and Capitol Drive**

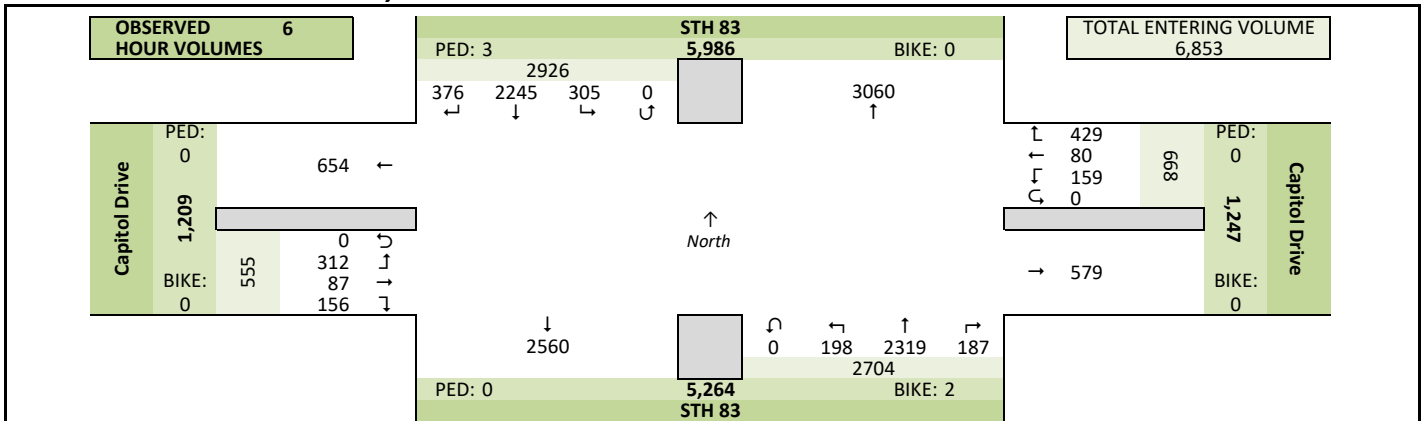
### Site Information

|                              |                                           |                 |      |
|------------------------------|-------------------------------------------|-----------------|------|
| Municipality                 | Village of Hartland                       |                 |      |
| County                       | Waukesha                                  | WisDOT Region   | SE   |
| Traffic Control              | Traffic Signal                            |                 |      |
| Roadway Names                |                                           | North Direction | ↑    |
| North Leg                    | STH 83                                    |                 |      |
| East Leg                     | Capitol Drive                             |                 |      |
| South Leg                    | STH 83                                    |                 |      |
| West Leg                     | Capitol Drive                             |                 |      |
| Special Considerations       |                                           |                 |      |
| Schools                      | In Session                                |                 |      |
| Holidays                     | None                                      |                 |      |
| Special Events               | None                                      |                 |      |
| Special Pedestrians Observed |                                           |                 |      |
|                              | Pre-school children                       | None            |      |
|                              | Elementry school age children             | None            |      |
|                              | Visually impaired (white cane/helper dog) | None            |      |
|                              | Elderly/disabled (except wheelchairs)     | None            |      |
|                              | Wheelchairs/electric scooters             | None            |      |
|                              | Other (describe)                          | None            | None |

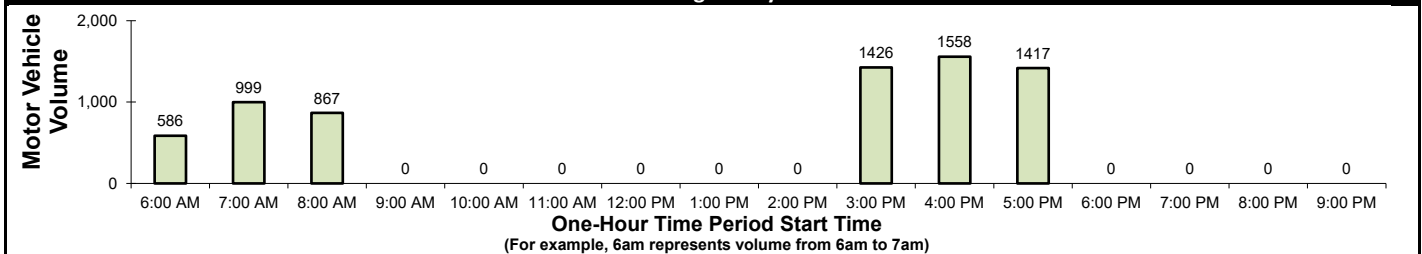
### Count Information

|                                                  |                           |                                  |                        |                |
|--------------------------------------------------|---------------------------|----------------------------------|------------------------|----------------|
| Hrs Counted: 6:00 AM-9:00 AM and 3:00 PM-6:00 PM |                           |                                  |                        |                |
| 1st Day of Count                                 |                           | Monday, March 21, 2022           |                        | Weather        |
| AM Peak Period                                   |                           | Wednesday, March 23, 2022        |                        | Clear & Dry    |
| Midday Peak Period                               |                           | Wednesday, March 23, 2022        |                        | Clear & Dry    |
| PM Peak Period                                   |                           | Monday, March 21, 2022           |                        | Clear & Dry    |
| Calculated Peak Hours                            |                           |                                  |                        |                |
|                                                  | AM                        | 7:15-8:15am                      | MD                     |                |
|                                                  |                           |                                  |                        | PM 4:30-5:30pm |
| Peak Hours Selected for Analysis                 |                           |                                  |                        |                |
|                                                  | AM                        | 7:00-8:00am                      | MD                     |                |
|                                                  |                           |                                  |                        | PM 4:30-5:30pm |
| Daily/Seasonal Adjustment Group                  |                           | (2) Urban Arterials & Collectors |                        |                |
| Count Expansion Group                            |                           | (2) Urban Arterials & Collectors |                        |                |
| Daily/Seasonal Adjustment Factor                 |                           | 0.983                            | Count Expansion Factor | 2.284          |
| Company Name TADI, Inc                           |                           |                                  | Manual Adj.            | 1.000          |
| Observers                                        | AM Peak Period            |                                  | Amy Scheuerlein        |                |
|                                                  | Midday Peak Period        |                                  | None                   |                |
|                                                  | PM Peak Period            |                                  | Wendy Picard           |                |
| Comments                                         | 2019 DOT Seasonal Factors |                                  |                        |                |

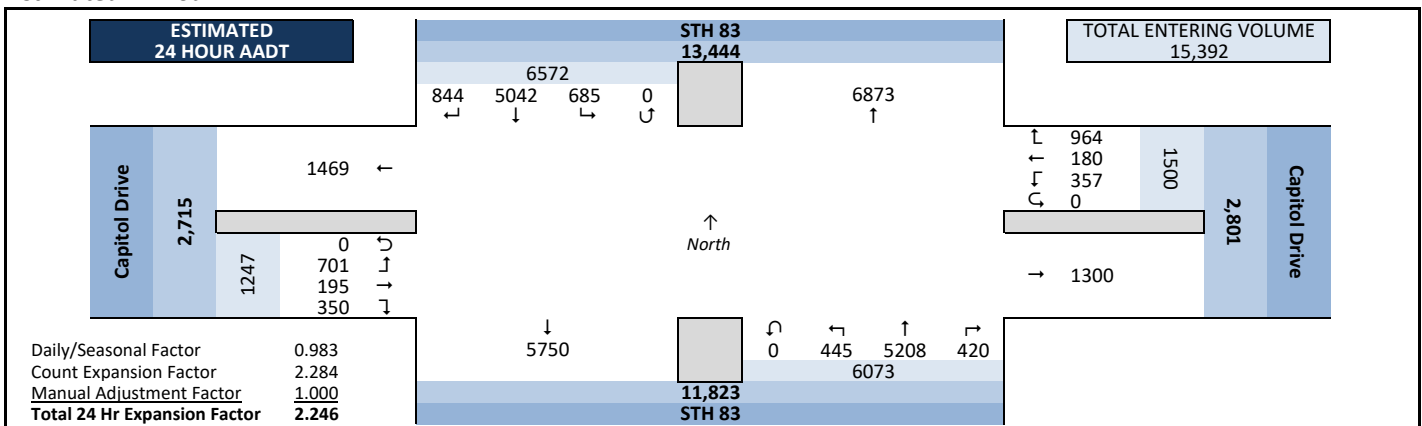
### Observed 6 Hour Volume Summary



### Total Entering Hourly Volume



### Estimated 24 Hour AADT



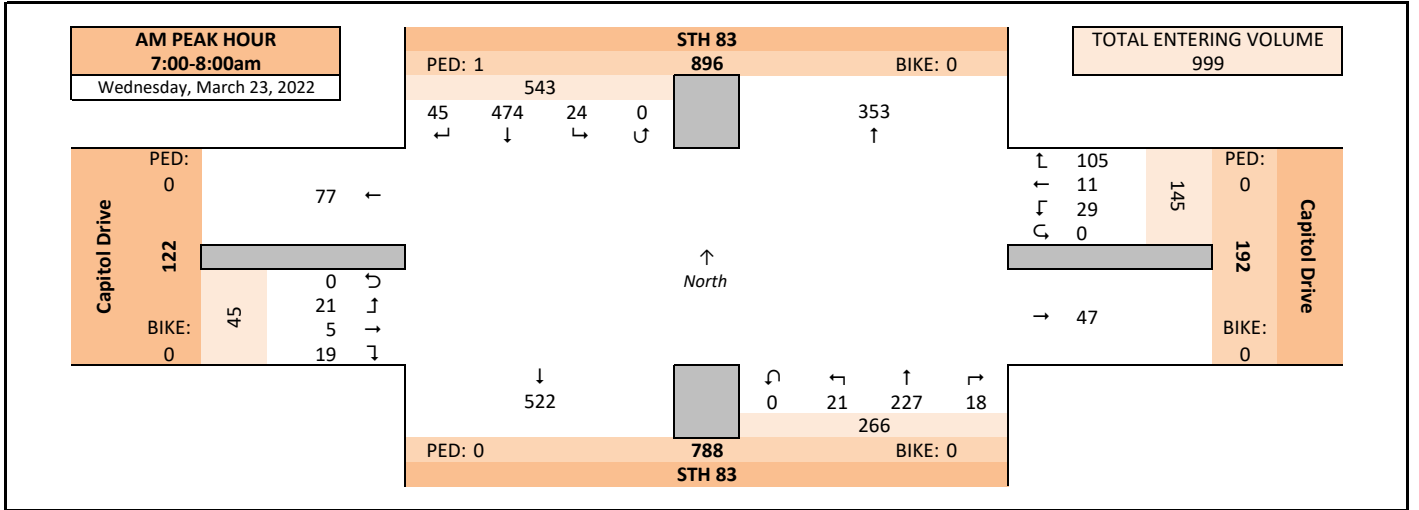
# Intersection Traffic Volume Report

## Peak Hour Volume Graphical Summary

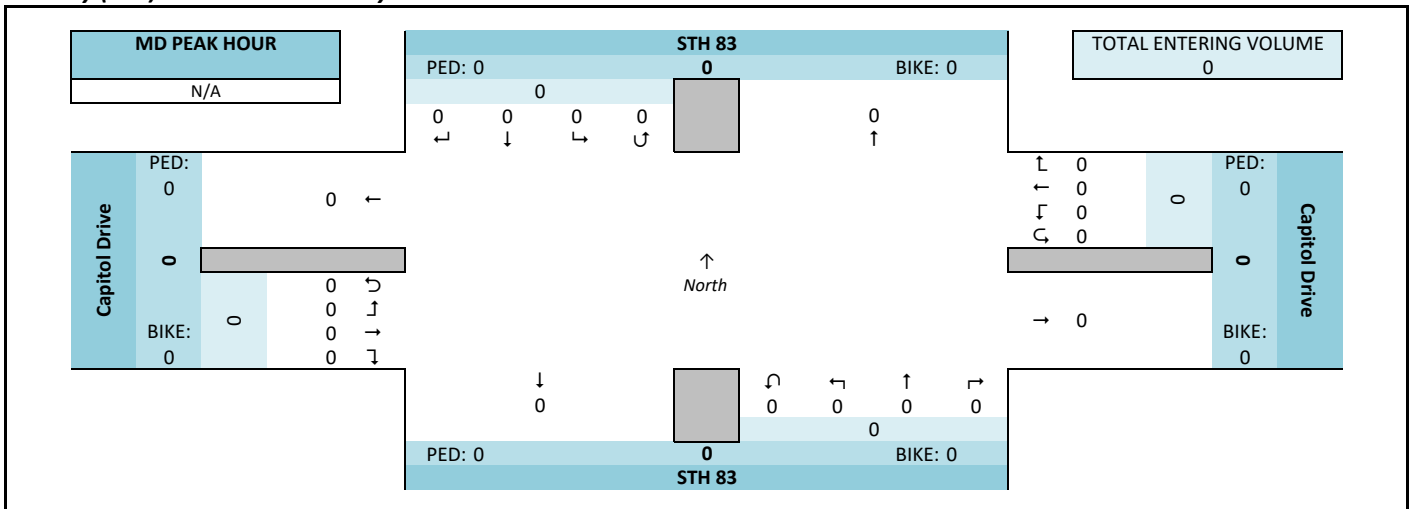
### STH 83 and Capitol Drive

#### AM Peak Hour Summary

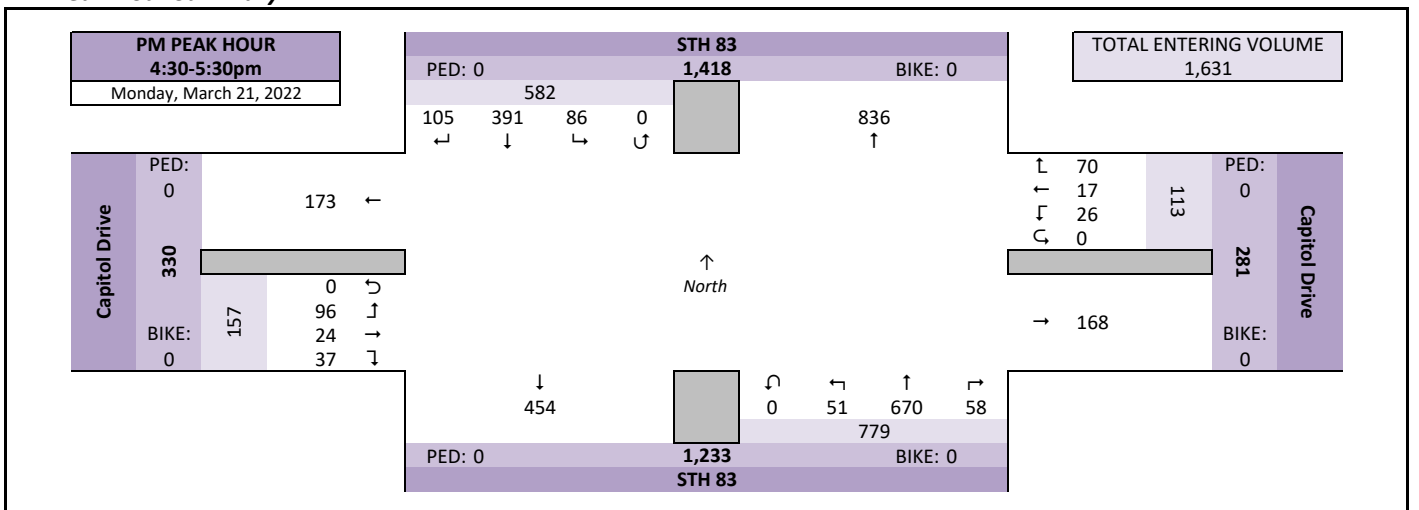
| Count Basics                   |                        | Page 2 of 13 |                    |
|--------------------------------|------------------------|--------------|--------------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday      | Schools in Session |
| Total Number of Hours Counted: | 6                      | Non-Holiday  | No Special Events  |



#### Midday (MD) Peak Hour Summary



#### PM Peak Hour Summary



### ***STH 83 and Capitol Drive***

[illegible]

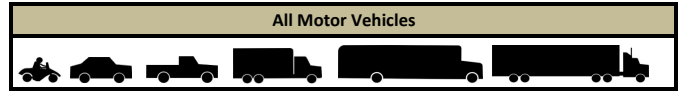
# Intersection Traffic Volume Report

## 15-Minute Motor Vehicle Data

### STH 83 and Capitol Drive

#### 15-Minute Motor Vehicle Data

| Count Basics                   |                        |             | Page 5 of 13       |  |
|--------------------------------|------------------------|-------------|--------------------|--|
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session |  |
| Total Number of Hours Counted: | 6                      | Non-Holiday | No Special Events  |  |



| 15-Minute<br>Time Period<br>Start Time | From North |      |      |      |       | From East     |      |      |      |       | From South |      |      |      |       | From West     |      |      |      |       | 15-Min<br>Totals | Hourly<br>Sum | PHF  |      |
|----------------------------------------|------------|------|------|------|-------|---------------|------|------|------|-------|------------|------|------|------|-------|---------------|------|------|------|-------|------------------|---------------|------|------|
|                                        | STH 83     |      |      |      |       | Capitol Drive |      |      |      |       | STH 83     |      |      |      |       | Capitol Drive |      |      |      |       |                  |               |      |      |
|                                        | Right      | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right      | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total |                  |               |      |      |
| AM Peak Period                         | 6:00 AM    | 4    | 31   | 5    | 0     | 40            | 13   | 0    | 3    | 0     | 16         | 3    | 35   | 0    | 0     | 38            | 0    | 0    | 4    | 0     | 4                | 98            | 586  | 0.67 |
|                                        | 6:15 AM    | 5    | 60   | 4    | 0     | 69            | 8    | 0    | 8    | 0     | 16         | 1    | 30   | 4    | 0     | 35            | 2    | 0    | 4    | 0     | 6                | 126           | 669  | 0.77 |
|                                        | 6:30 AM    | 10   | 55   | 6    | 0     | 71            | 22   | 0    | 7    | 0     | 29         | 2    | 35   | 4    | 0     | 41            | 1    | 2    | 0    | 0     | 3                | 144           | 769  | 0.85 |
|                                        | 6:45 AM    | 11   | 121  | 6    | 0     | 138           | 20   | 3    | 6    | 0     | 29         | 2    | 35   | 8    | 0     | 45            | 2    | 0    | 4    | 0     | 6                | 218           | 883  | 0.86 |
|                                        | 7:00 AM    | 12   | 78   | 5    | 0     | 95            | 28   | 2    | 2    | 0     | 32         | 0    | 42   | 4    | 0     | 46            | 3    | 0    | 5    | 0     | 8                | 181           | 999  | 0.75 |
|                                        | 7:15 AM    | 4    | 101  | 3    | 0     | 108           | 24   | 3    | 10   | 0     | 37         | 6    | 64   | 1    | 0     | 71            | 4    | 2    | 4    | 0     | 10               | 226           | 1003 | 0.75 |
|                                        | 7:30 AM    | 12   | 133  | 4    | 0     | 149           | 30   | 2    | 6    | 0     | 38         | 6    | 48   | 4    | 0     | 58            | 8    | 1    | 4    | 0     | 13               | 258           | 1002 | 0.75 |
|                                        | 7:45 AM    | 17   | 162  | 12   | 0     | 191           | 23   | 4    | 11   | 0     | 38         | 6    | 73   | 12   | 0     | 91            | 4    | 2    | 8    | 0     | 14               | 334           | 968  | 0.72 |
|                                        | 8:00 AM    | 9    | 66   | 3    | 0     | 78            | 21   | 1    | 6    | 0     | 28         | 5    | 52   | 3    | 0     | 60            | 10   | 0    | 9    | 0     | 19               | 185           | 867  | 0.93 |
|                                        | 8:15 AM    | 2    | 116  | 4    | 0     | 122           | 23   | 1    | 8    | 0     | 32         | 3    | 59   | 1    | 0     | 63            | 4    | 1    | 3    | 0     | 8                | 225           |      |      |
|                                        | 8:30 AM    | 13   | 102  | 2    | 0     | 117           | 18   | 1    | 5    | 0     | 24         | 6    | 57   | 9    | 0     | 72            | 4    | 1    | 6    | 0     | 11               | 224           |      |      |
|                                        | 8:45 AM    | 12   | 106  | 8    | 0     | 126           | 19   | 1    | 6    | 0     | 26         | 6    | 59   | 5    | 0     | 70            | 3    | 1    | 7    | 0     | 11               | 233           |      |      |
|                                        | 9:00 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 9:15 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 9:30 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 9:45 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
| Midday Peak Period                     | 10:00 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 10:15 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 10:30 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 10:45 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 11:00 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 11:15 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 11:30 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 11:45 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 12:00 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 12:15 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 12:30 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 12:45 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 1:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 1:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 1:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 1:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
| PM Peak Period                         | 2:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 2:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 2:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 2:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 3:00 PM    | 21   | 78   | 20   | 0     | 119           | 10   | 5    | 6    | 0     | 21         | 11   | 126  | 11   | 0     | 148           | 9    | 5    | 11   | 0     | 25               | 313           | 1426 | 0.88 |
|                                        | 3:15 PM    | 17   | 97   | 14   | 0     | 128           | 17   | 4    | 14   | 0     | 35         | 13   | 115  | 15   | 0     | 143           | 13   | 9    | 28   | 0     | 50               | 356           | 1499 | 0.92 |
|                                        | 3:30 PM    | 19   | 101  | 22   | 0     | 142           | 13   | 6    | 5    | 0     | 24         | 13   | 180  | 15   | 0     | 208           | 10   | 6    | 16   | 0     | 32               | 406           | 1484 | 0.91 |
|                                        | 3:45 PM    | 21   | 113  | 15   | 0     | 149           | 15   | 5    | 3    | 0     | 23         | 8    | 130  | 8    | 0     | 146           | 3    | 6    | 24   | 0     | 33               | 351           | 1499 | 0.89 |
|                                        | 4:00 PM    | 20   | 96   | 16   | 0     | 132           | 17   | 7    | 10   | 0     | 34         | 8    | 165  | 12   | 0     | 185           | 13   | 6    | 16   | 0     | 35               | 386           | 1558 | 0.93 |
|                                        | 4:15 PM    | 31   | 90   | 21   | 0     | 142           | 9    | 7    | 8    | 0     | 24         | 7    | 121  | 13   | 0     | 141           | 8    | 8    | 18   | 0     | 34               | 341           | 1599 | 0.94 |
|                                        | 4:30 PM    | 30   | 88   | 15   | 0     | 133           | 20   | 5    | 6    | 0     | 31         | 13   | 195  | 15   | 0     | 223           | 12   | 7    | 15   | 0     | 34               | 421           | 1631 | 0.95 |
|                                        | 4:45 PM    | 27   | 114  | 20   | 0     | 161           | 11   | 4    | 6    | 0     | 21         | 11   | 155  | 12   | 0     | 178           | 12   | 10   | 28   | 0     | 50               | 410           | 1535 | 0.90 |
|                                        | 5:00 PM    | 22   | 94   | 25   | 0     | 141           | 23   | 2    | 7    | 0     | 32         | 14   | 194  | 13   | 0     | 221           | 7    | 6    | 20   | 0     | 33               | 427           | 1417 | 0.83 |
|                                        | 5:15 PM    | 26   | 95   | 26   | 0     | 147           | 16   | 6    | 7    | 0     | 29         | 20   | 126  | 11   | 0     | 157           | 6    | 1    | 33   | 0     | 40               | 373           |      |      |
|                                        | 5:30 PM    | 17   | 67   | 28   | 0     | 112           | 11   | 8    | 5    | 0     | 24         | 14   | 129  | 6    | 0     | 149           | 6    | 7    | 27   | 0     | 40               | 325           |      |      |
|                                        | 5:45 PM    | 14   | 81   | 21   | 0     | 116           | 18   | 3    | 4    | 0     | 25         | 9    | 94   | 12   | 0     | 115           | 12   | 6    | 18   | 0     | 36               | 292           |      |      |
|                                        | 6:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 6:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 6:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 6:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 7:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 7:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 7:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
|                                        | 7:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             |      |      |
| 8:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 8:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 8:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 8:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 9:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 9:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 9:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| 9:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |      |      |
| Totals                                 |            | 376  | 2245 | 305  | 0     | 2926          | 429  | 80   | 159  | 0     | 668        | 187  | 2319 | 198  | 0     | 2704          | 156  | 87   | 312  | 0     | 555              | 6853          |      |      |

#### Peak Hour All Vehicle Volume Summary

| Hourly<br>Time Period<br>Start Time | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       | Total<br>Hourly<br>Volume | PHF  |
|-------------------------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|---------------------------|------|
|                                     | STH 83          |      |      |      |       | Capitol Drive  |      |      |      |       | STH 83          |      |      |      |       | Capitol Drive  |      |      |      |       |                           |      |
|                                     | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total |                           |      |
| AM 7:00 AM                          | 45              | 474  | 24   | 0    | 543   | 105            | 11   | 29   | 0    | 145   | 18              | 227  | 21   | 0    | 266   | 19             | 5    | 21   | 0    | 45    | 999                       | 0.75 |
| MD 12:00 PM                         | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0                         | 0    |
| PM 4:30 PM                          | 105             | 391  | 86   | 0    | 582   | 70             | 17   | 26   | 0    | 113   | 58              | 670  | 51   | 0    | 779   | 37             | 24   | 96   | 0    | 157   | 1631                      | 0.95 |

# Intersection Traffic Volume Report

| Count Basics                   |                        |             | Page 9 of 13       |
|--------------------------------|------------------------|-------------|--------------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session |
| Total Number of Hours Counted: | 6                      | Non-Holiday | No Special Events  |

## 15-Minute Heavy Vehicle Data

### STH 83 and Capitol Drive



#### 15-Minute Heavy Vehicle Data

| 15-Minute<br>Time Period<br>Start Time | From North |      |      |      |       |       | From East     |      |      |       |       | From South |      |      |       |       | From West     |      |      |       |   | 15-Min<br>Totals | Hourly<br>Sum |
|----------------------------------------|------------|------|------|------|-------|-------|---------------|------|------|-------|-------|------------|------|------|-------|-------|---------------|------|------|-------|---|------------------|---------------|
|                                        | STH 83     |      |      |      |       |       | Capitol Drive |      |      |       |       | STH 83     |      |      |       |       | Capitol Drive |      |      |       |   |                  |               |
|                                        | Right      | Thru | Left | U-Tn | Total | Right | Thru          | Left | U-Tn | Total | Right | Thru       | Left | U-Tn | Total | Right | Thru          | Left | U-Tn | Total |   |                  |               |
| AM Peak Period                         | 6:00 AM    | 0    | 0    | 0    | 0     | 0     | 2             | 0    | 1    | 0     | 3     | 0          | 13   | 0    | 0     | 13    | 0             | 0    | 0    | 0     | 0 | 16               | 50            |
|                                        | 6:15 AM    | 1    | 4    | 0    | 0     | 5     | 0             | 0    | 0    | 0     | 0     | 0          | 7    | 0    | 0     | 7     | 1             | 0    | 1    | 0     | 2 | 41               |               |
|                                        | 6:30 AM    | 0    | 2    | 1    | 0     | 3     | 1             | 0    | 0    | 0     | 1     | 0          | 6    | 0    | 0     | 6     | 0             | 0    | 0    | 0     | 0 | 10               | 43            |
|                                        | 6:45 AM    | 0    | 5    | 0    | 0     | 5     | 1             | 0    | 0    | 0     | 1     | 0          | 4    | 0    | 0     | 4     | 0             | 0    | 0    | 0     | 0 | 10               | 48            |
|                                        | 7:00 AM    | 0    | 2    | 0    | 0     | 2     | 1             | 0    | 0    | 0     | 1     | 0          | 4    | 0    | 0     | 4     | 0             | 0    | 0    | 0     | 0 | 7                | 58            |
|                                        | 7:15 AM    | 1    | 7    | 0    | 0     | 8     | 0             | 0    | 0    | 0     | 0     | 1          | 7    | 0    | 0     | 8     | 0             | 0    | 0    | 0     | 0 | 16               | 67            |
|                                        | 7:30 AM    | 0    | 8    | 0    | 0     | 8     | 1             | 0    | 0    | 0     | 1     | 2          | 3    | 0    | 0     | 5     | 0             | 1    | 0    | 0     | 1 | 15               | 67            |
|                                        | 7:45 AM    | 0    | 10   | 0    | 0     | 10    | 0             | 0    | 0    | 0     | 0     | 0          | 10   | 0    | 0     | 10    | 0             | 0    | 0    | 0     | 0 | 20               | 67            |
|                                        | 8:00 AM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 2    | 0     | 2     | 3          | 11   | 0    | 0     | 14    | 0             | 0    | 0    | 0     | 0 | 16               | 69            |
|                                        | 8:15 AM    | 0    | 5    | 0    | 0     | 5     | 3             | 0    | 1    | 0     | 4     | 1          | 5    | 1    | 0     | 7     | 0             | 0    | 0    | 0     | 0 | 16               |               |
|                                        | 8:30 AM    | 0    | 7    | 0    | 0     | 7     | 0             | 0    | 0    | 0     | 0     | 0          | 7    | 0    | 0     | 7     | 0             | 0    | 1    | 0     | 1 | 15               |               |
|                                        | 8:45 AM    | 0    | 10   | 0    | 0     | 10    | 1             | 0    | 0    | 0     | 1     | 1          | 10   | 0    | 0     | 11    | 0             | 0    | 0    | 0     | 0 | 22               |               |
|                                        | 9:00 AM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 9:15 AM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 9:30 AM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 9:45 AM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
| Midday Peak Period                     | 10:00 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 10:15 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 10:30 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 10:45 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 11:00 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 11:15 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 11:30 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 11:45 AM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 12:00 PM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 12:15 PM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 12:30 PM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 12:45 PM   | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 1:00 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 1:15 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 1:30 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 1:45 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
| PM Peak Period                         | 2:00 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 2:15 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 2:30 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 2:45 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 3:00 PM    | 0    | 11   | 0    | 0     | 11    | 0             | 0    | 0    | 0     | 0     | 0          | 6    | 0    | 0     | 6     | 0             | 0    | 0    | 0     | 0 | 17               | 64            |
|                                        | 3:15 PM    | 0    | 11   | 1    | 0     | 12    | 0             | 0    | 0    | 0     | 0     | 0          | 4    | 2    | 0     | 6     | 0             | 0    | 1    | 0     | 1 | 19               | 62            |
|                                        | 3:30 PM    | 0    | 8    | 2    | 0     | 10    | 2             | 0    | 0    | 0     | 2     | 0          | 1    | 0    | 0     | 1     | 0             | 1    | 0    | 0     | 1 | 14               | 57            |
|                                        | 3:45 PM    | 0    | 6    | 1    | 0     | 7     | 1             | 0    | 0    | 0     | 1     | 0          | 6    | 0    | 0     | 6     | 0             | 0    | 0    | 0     | 0 | 14               | 48            |
|                                        | 4:00 PM    | 0    | 7    | 0    | 0     | 7     | 0             | 0    | 0    | 0     | 0     | 0          | 8    | 0    | 0     | 8     | 0             | 0    | 0    | 0     | 0 | 15               | 47            |
|                                        | 4:15 PM    | 0    | 9    | 2    | 0     | 11    | 0             | 0    | 0    | 0     | 0     | 0          | 3    | 0    | 0     | 3     | 0             | 0    | 0    | 0     | 0 | 14               | 39            |
|                                        | 4:30 PM    | 0    | 2    | 0    | 0     | 2     | 0             | 1    | 0    | 0     | 1     | 0          | 2    | 0    | 0     | 2     | 0             | 0    | 0    | 0     | 0 | 5                | 29            |
|                                        | 4:45 PM    | 0    | 5    | 3    | 0     | 8     | 1             | 0    | 0    | 0     | 1     | 0          | 4    | 0    | 0     | 4     | 0             | 0    | 0    | 0     | 0 | 13               | 29            |
|                                        | 5:00 PM    | 1    | 1    | 2    | 0     | 4     | 0             | 0    | 0    | 0     | 0     | 0          | 3    | 0    | 0     | 3     | 0             | 0    | 0    | 0     | 0 | 7                | 20            |
|                                        | 5:15 PM    | 0    | 2    | 0    | 0     | 2     | 0             | 0    | 0    | 0     | 0     | 0          | 2    | 0    | 0     | 2     | 0             | 0    | 0    | 0     | 0 | 4                |               |
|                                        | 5:30 PM    | 0    | 3    | 1    | 0     | 4     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 1    | 0     | 1 | 5                |               |
|                                        | 5:45 PM    | 0    | 0    | 0    | 0     | 0     | 1             | 0    | 0    | 0     | 1     | 0          | 3    | 0    | 0     | 3     | 0             | 0    | 0    | 0     | 0 | 4                |               |
|                                        | 6:00 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 6:15 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 6:30 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 6:45 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 7:00 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 7:15 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 7:30 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
|                                        | 7:45 PM    | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 | 0                |               |
| 8:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 8:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 8:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 8:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 9:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 9:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 9:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| 9:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0     | 0             | 0    | 0    | 0     | 0 |                  |               |
| Totals                                 |            | 3    | 125  | 13   | 0     | 141   | 15            | 1    | 4    | 0     | 20    | 8          | 129  | 3    | 0     | 140   | 1             | 2    | 4    | 0     | 7 | 308              |               |

#### Peak Hour Heavy Vehicle Volume Summary

| Hourly<br>Time Period<br>Start Time | From North |      |      |      |       | From East     |      |      |      |       | From South |      |      |      |       | From West     |      |      |      |       | Total<br>Hourly<br>Volume |
|-------------------------------------|------------|------|------|------|-------|---------------|------|------|------|-------|------------|------|------|------|-------|---------------|------|------|------|-------|---------------------------|
|                                     | STH 83     |      |      |      |       | Capitol Drive |      |      |      |       | STH 83     |      |      |      |       | Capitol Drive |      |      |      |       |                           |
|                                     | Right      | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right      | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total |                           |
| AM 7:00 AM                          | 1          | 27   | 0    | 0    | 28    | 2             | 0    | 0    | 0    | 2     | 3          | 24   | 0    | 0    | 27    | 0             | 1    | 0    | 0    | 1     | 58                        |
| MD 12:00 PM                         | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                         |
| PM 4:30 PM                          | 1          | 10   | 5    | 0    | 16    | 1             | 1    | 0    | 0    | 2     | 0          | 11   | 0    | 0    | 11    | 0             | 0    | 0    | 0    | 0     | 29                        |

# Intersection Traffic Volume Report

| Count Basics                   |                        | Version 2013.J4.1 | Page 1 of 13       |
|--------------------------------|------------------------|-------------------|--------------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday           | Schools in Session |
| Total Number of Hours Counted: | 6                      | Non-Holiday       | No Special Events  |

## Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Palmer Drive and Capitol Drive**

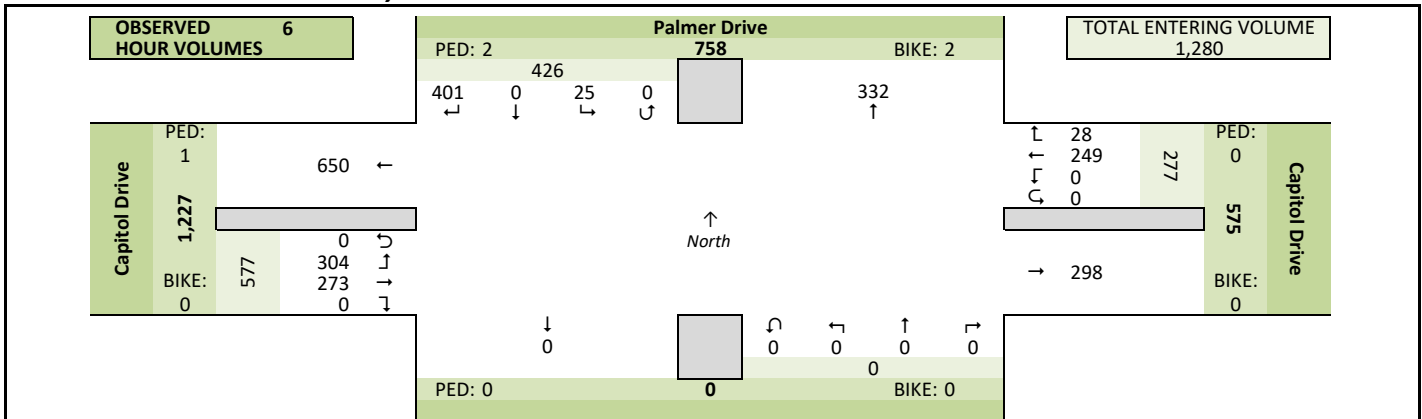
### Site Information

|                              |                                           |                 |    |
|------------------------------|-------------------------------------------|-----------------|----|
| Municipality                 | Village of Hartland                       |                 |    |
| County                       | Waukesha                                  | WisDOT Region   | SE |
| Traffic Control              | Partial Stop Control                      |                 |    |
| Roadway Names                |                                           | North Direction | ↑  |
| North Leg                    | Palmer Drive                              |                 |    |
| East Leg                     | Capitol Drive                             |                 |    |
| South Leg                    |                                           |                 |    |
| West Leg                     | Capitol Drive                             |                 |    |
| Special Considerations       |                                           |                 |    |
| Schools                      | In Session                                |                 |    |
| Holidays                     | None                                      |                 |    |
| Special Events               | None                                      |                 |    |
| Special Pedestrians Observed |                                           |                 |    |
|                              | Pre-school children                       | None            |    |
|                              | Elementry school age children             | None            |    |
|                              | Visually impaired (white cane/helper dog) | None            |    |
|                              | Elderly/disabled (except wheelchairs)     | None            |    |
|                              | Wheelchairs/electric scooters             | None            |    |
|                              | Other (describe)                          | None            |    |

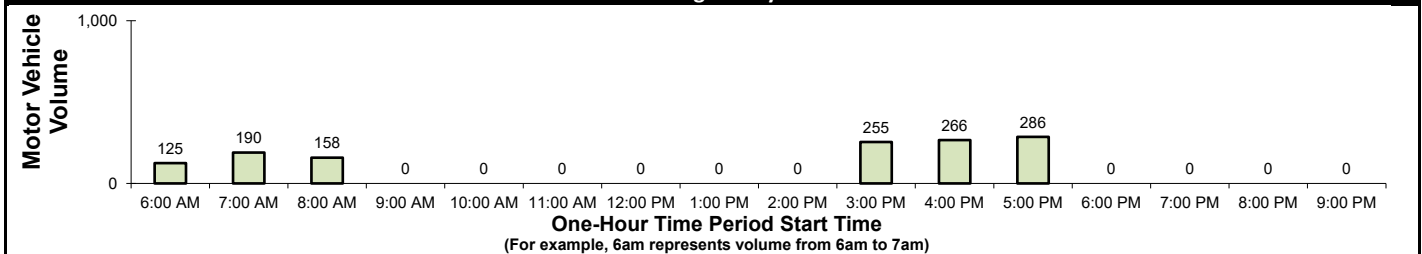
### Count Information

|                                                  |                           |                           |                                  |                              |
|--------------------------------------------------|---------------------------|---------------------------|----------------------------------|------------------------------|
| Hrs Counted: 6:00 AM-9:00 AM and 3:00 PM-6:00 PM |                           |                           |                                  |                              |
| 1st Day of Count                                 |                           | Monday, March 21, 2022    |                                  | Weather                      |
| AM Peak Period                                   |                           | Wednesday, March 23, 2022 |                                  | Clear & Dry                  |
| Midday Peak Period                               |                           | Wednesday, March 23, 2022 |                                  | Clear & Dry                  |
| PM Peak Period                                   |                           | Monday, March 21, 2022    |                                  | Clear & Dry                  |
| Calculated Peak Hours                            |                           |                           |                                  |                              |
|                                                  | AM                        | 7:15-8:15am               | MD                               | PM 4:45-5:45pm               |
| Peak Hours Selected for Analysis                 |                           |                           |                                  |                              |
|                                                  | AM                        | 7:00-8:00am               | MD                               | PM 4:30-5:30pm               |
| Daily/Seasonal Adjustment Group                  |                           |                           | (2) Urban Arterials & Collectors |                              |
| Count Expansion Group                            |                           |                           | (2) Urban Arterials & Collectors |                              |
| Daily/Seasonal Adjustment Factor                 |                           |                           | 0.983                            | Count Expansion Factor 2.284 |
| Company Name TADI, Inc                           |                           |                           |                                  | Manual Adj. 1.000            |
| Observers                                        | AM Peak Period            |                           | Jane Fait                        |                              |
|                                                  | Midday Peak Period        |                           | None                             |                              |
|                                                  | PM Peak Period            |                           | Emily Eissens                    |                              |
| Comments                                         | 2019 DOT Seasonal Factors |                           |                                  |                              |

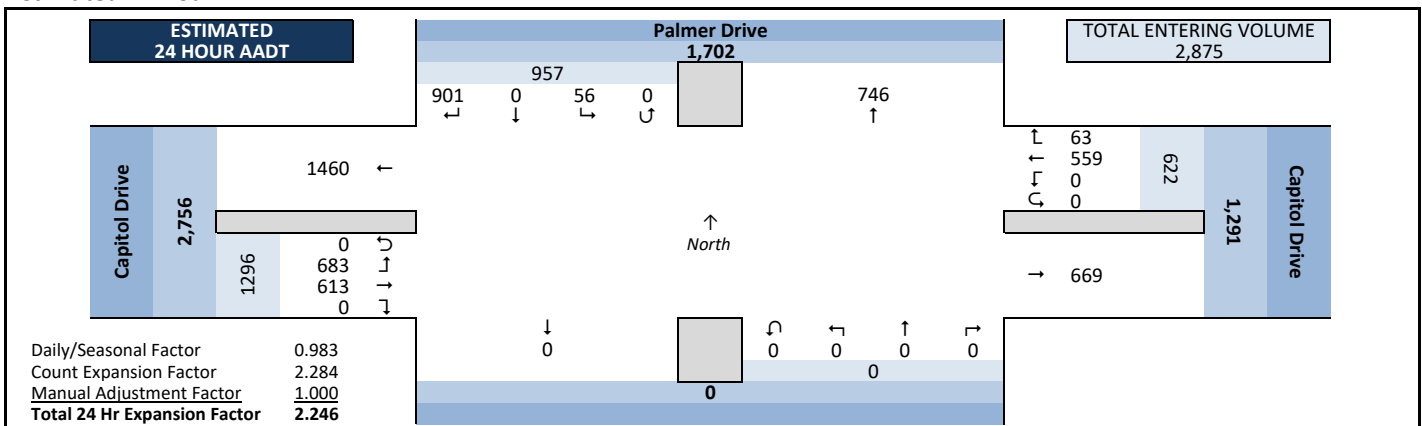
### Observed 6 Hour Volume Summary



### Total Entering Hourly Volume



### Estimated 24 Hour AADT



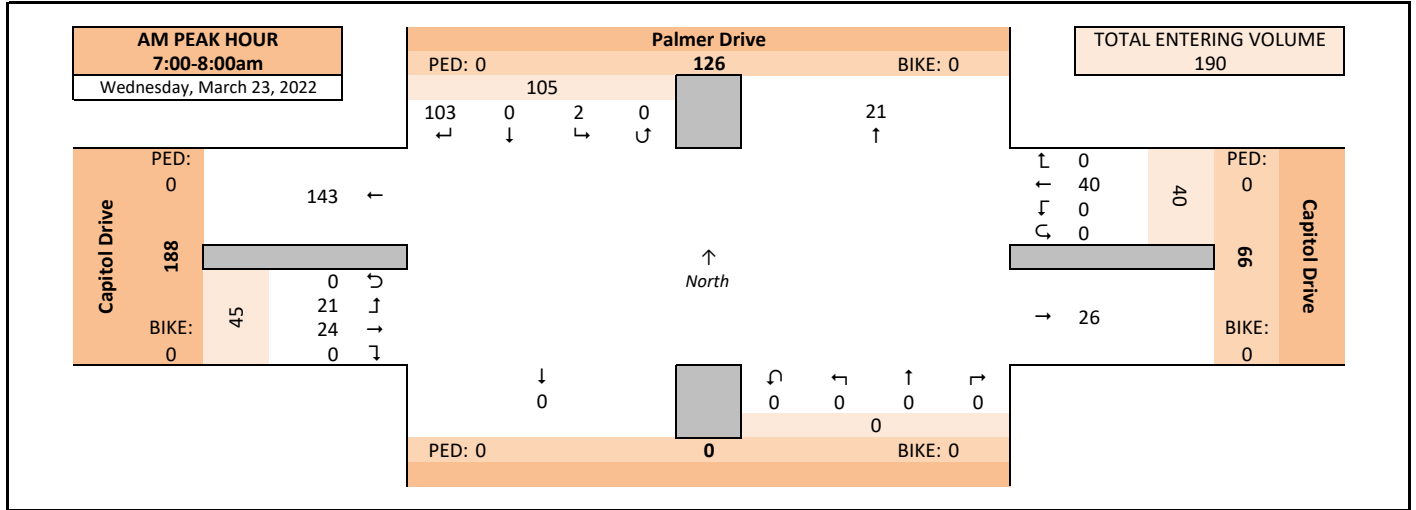
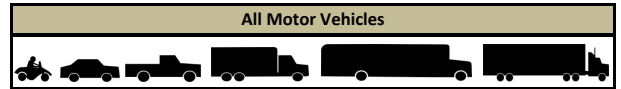
# Intersection Traffic Volume Report

## Peak Hour Volume Graphical Summary

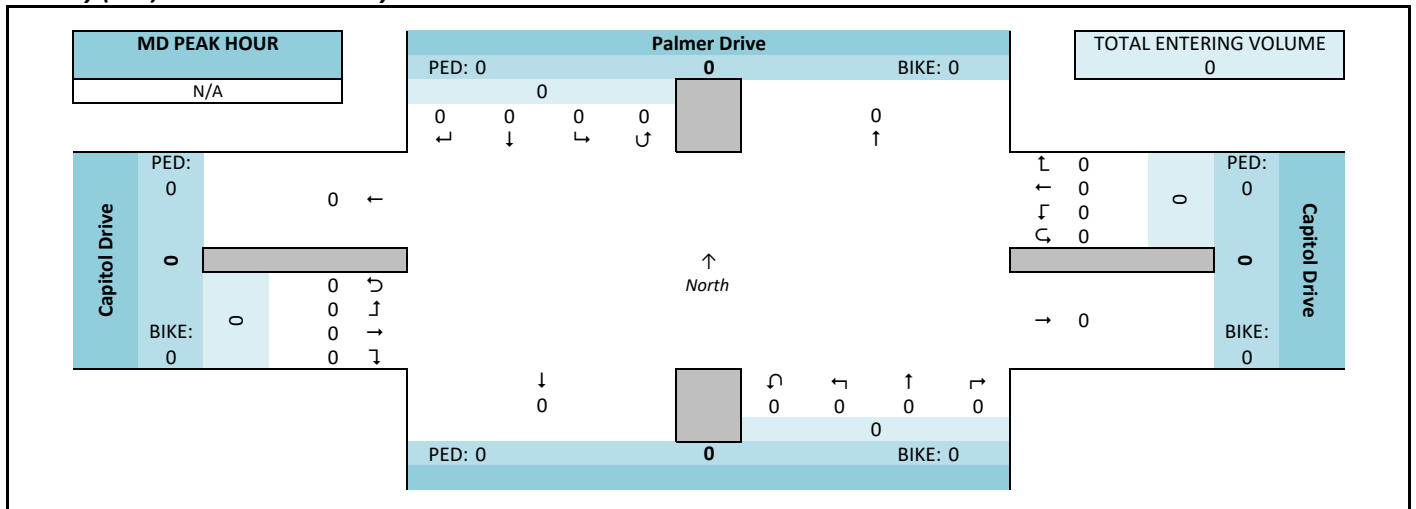
### Palmer Drive and Capitol Drive

#### AM Peak Hour Summary

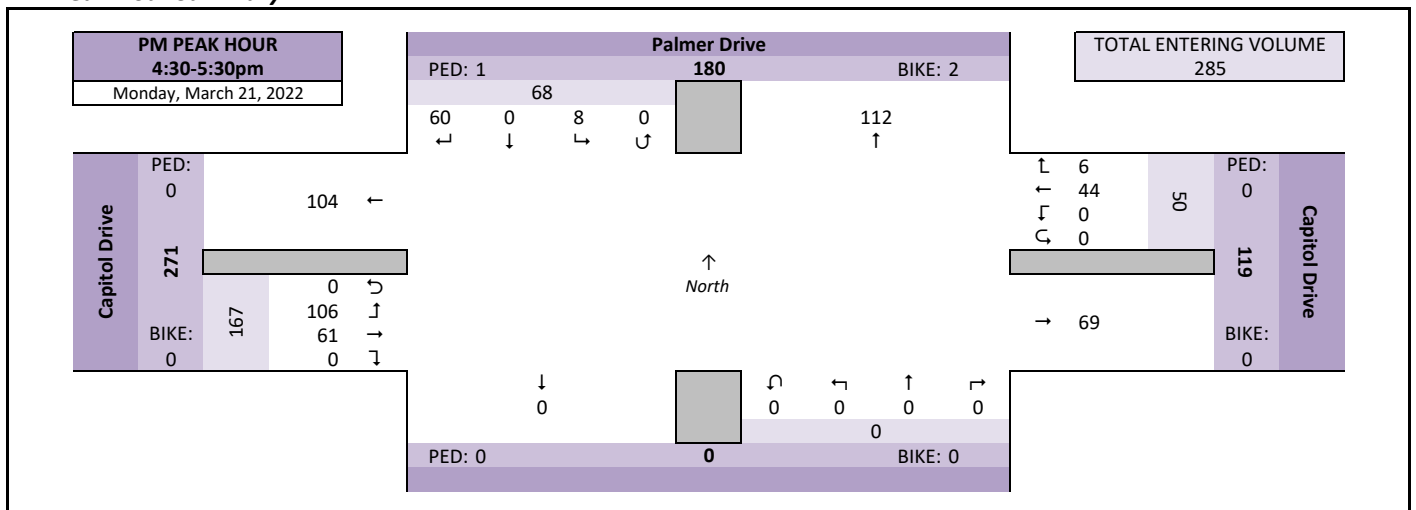
| Count Basics                   |                        | Page 2 of 13 |                    |
|--------------------------------|------------------------|--------------|--------------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday      | Schools in Session |
| Total Number of Hours Counted: | 6                      | Non-Holiday  | No Special Events  |



#### Midday (MD) Peak Hour Summary



#### PM Peak Hour Summary



|                                |                        |             |                     |
|--------------------------------|------------------------|-------------|---------------------|
| <b>Count Basics</b>            |                        |             | <b>Page 3 of 13</b> |
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session  |
| Total Number of Hours Counted: | 6                      | Non-Holiday | No Special Events   |

All Motor Vehicles

### Peak Hour Volumes, Truck Percentages, and PHFs

| Wednesday, March 23, 2022 |                       | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       | Totals |     |
|---------------------------|-----------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|--------|-----|
| AM Peak Hour              | AM Peak Hour          | Palmer Drive    |      |      |      |       | Capitol Drive  |      |      |      |       | Capitol Drive   |      |      |      |       | Capitol Drive  |      |      |      |       |        |     |
|                           | Start Time            | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total |        |     |
|                           | 7:00 AM               | 24              | 0    | 0    | 0    | 24    | 0              | 8    | 0    | 0    | 8     | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 3    | 1    | 0     | 4      | 36  |
|                           | 7:15 AM               | 26              | 0    | 0    | 0    | 26    | 0              | 10   | 0    | 0    | 10    | 0               | 0    | 0    | 0    | 0     | 0              | 6    | 5    | 0    | 0     | 11     | 47  |
|                           | 7:30 AM               | 30              | 0    | 0    | 0    | 30    | 0              | 8    | 0    | 0    | 8     | 0               | 0    | 0    | 0    | 0     | 0              | 7    | 4    | 0    | 0     | 11     | 49  |
|                           | 7:45 AM               | 23              | 0    | 2    | 0    | 25    | 0              | 14   | 0    | 0    | 14    | 0               | 0    | 0    | 0    | 0     | 0              | 8    | 11   | 0    | 0     | 19     | 58  |
|                           | Peak Hour Volume      | 103             | 0    | 2    | 0    | 105   | 0              | 40   | 0    | 0    | 40    | 0               | 0    | 0    | 0    | 0     | 0              | 24   | 21   | 0    | 0     | 45     | 190 |
|                           | Rounded Hourly Volume | 105             | 0    | 0    | 0    | 105   | 0              | 40   | 0    | 0    | 40    | 0               | 0    | 0    | 0    | 0     | 0              | 25   | 20   | 0    | 0     | 45     | 190 |
|                           | % Single Unit Trucks  | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 5.0  | 0.0  | 0.0  | 5.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 8.3  | 0.0  | 0.0  | 0.0   | 4.4    | 2.1 |
|                           | % Heavy Trucks        | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 4.2  | 0.0  | 0.0  | 0.0   | 2.2    | 0.5 |
| % Trucks (Total)          | 0.0                   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 5.0            | 0.0  | 0.0  | 5.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 12.5           | 0.0  | 0.0  | 0.0  | 6.7   | 2.6    |     |
| Peak Hour Factor (PHF)    | 0.86                  | 0.00            | 0.25 | 0.00 | 0.87 | 0.00  | 0.71           | 0.00 | 0.00 | 0.71 | 0.00  | 0.00            | 0.00 | 0.00 | 0.00 | 0.00  | 0.75           | 0.48 | 0.00 | 0.59 | 0.82  |        |     |

[illegible]

| Monday, March 21, 2022 |                       | ↓            |      |      |      |       | ←             |      |      |      |       | ↑             |      |      |      |       | →             |      |      |      |       | Totals |     |
|------------------------|-----------------------|--------------|------|------|------|-------|---------------|------|------|------|-------|---------------|------|------|------|-------|---------------|------|------|------|-------|--------|-----|
|                        |                       | From North   |      |      |      |       | From East     |      |      |      |       | From South    |      |      |      |       | From West     |      |      |      |       |        |     |
|                        |                       | Palmer Drive |      |      |      |       | Capitol Drive |      |      |      |       | Capitol Drive |      |      |      |       | Capitol Drive |      |      |      |       |        |     |
| PM Peak Hour           | PM Peak Hour          | Right        | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total |        |     |
|                        | Start Time            |              |      |      |      |       |               |      |      |      |       |               |      |      |      |       |               |      |      |      |       |        |     |
|                        | 4:30 PM               | 21           | 0    | 0    | 0    | 21    | 1             | 10   | 0    | 0    | 11    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 10   | 24   | 0     | 34     | 66  |
|                        | 4:45 PM               | 12           | 0    | 3    | 0    | 15    | 1             | 9    | 0    | 0    | 10    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 18   | 22   | 0     | 40     | 65  |
|                        | 5:00 PM               | 16           | 0    | 1    | 0    | 17    | 2             | 12   | 0    | 0    | 14    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 13   | 31   | 0     | 44     | 75  |
|                        | 5:15 PM               | 11           | 0    | 4    | 0    | 15    | 2             | 13   | 0    | 0    | 15    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 20   | 29   | 0     | 49     | 79  |
|                        | Peak Hour Volume      | 60           | 0    | 8    | 0    | 68    | 6             | 44   | 0    | 0    | 50    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 61   | 106  | 0     | 167    | 285 |
|                        | Rounded Hourly Volume | 60           | 0    | 10   | 0    | 70    | 5             | 45   | 0    | 0    | 50    | 0             | 0    | 0    | 0    | 0     | 0             | 0    | 60   | 105  | 0     | 165    | 285 |
|                        | % Single Unit Trucks  | 1.7          | 0.0  | 0.0  | 0.0  | 1.5   | 0.0           | 2.3  | 0.0  | 0.0  | 2.0   | 0.0           | 0.0  | 0.0  | 0.0  | 0.0   | 0.0           | 0.0  | 8.2  | 0.0  | 0.0   | 3.0    | 2.5 |
| % Heavy Trucks         | 0.0                   | 0.0          | 0.0  | 0.0  | 0.0  | 0.0   | 0.0           | 0.0  | 0.0  | 0.0  | 0.0   | 0.0           | 0.0  | 0.0  | 0.0  | 0.0   | 0.0           | 3.3  | 0.9  | 0.0  | 1.8   | 1.1    |     |
| % Trucks (Total)       | 1.7                   | 0.0          | 0.0  | 0.0  | 1.5  | 0.0   | 2.3           | 0.0  | 0.0  | 2.0  | 0.0   | 0.0           | 0.0  | 0.0  | 0.0  | 0.0   | 0.0           | 11.5 | 0.9  | 0.0  | 4.8   | 3.5    |     |
| Peak Hour Factor (PHF) | 0.71                  | 0.00         | 0.50 | 0.00 | 0.81 | 0.75  | 0.85          | 0.00 | 0.00 | 0.83 | 0.00  | 0.00          | 0.00 | 0.00 | 0.00 | 0.00  | 0.00          | 0.76 | 0.85 | 0.00 | 0.85  | 0.90   |     |

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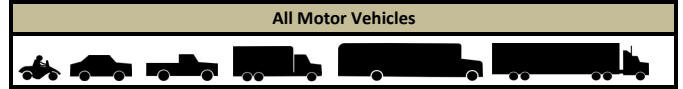
# Intersection Traffic Volume Report

## 15-Minute Motor Vehicle Data

### Palmer Drive and Capitol Drive

#### 15-Minute Motor Vehicle Data

| Count Basics                   |                        |             | Page 5 of 13       |  |
|--------------------------------|------------------------|-------------|--------------------|--|
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session |  |
| Total Number of Hours Counted: | 6                      | Non-Holiday | No Special Events  |  |



| 15-Minute<br>Time Period<br>Start Time | <div>↓</div> <div>From North</div> |      |      |      |       | <div>←</div> <div>From East</div> |      |      |      |       | <div>↑</div> <div>From South</div> |      |      |      |       | <div>→</div> <div>From West</div> |      |      |      |       | 15-Min<br>Totals | Hourly<br>Sum | PHF  |     |      |
|----------------------------------------|------------------------------------|------|------|------|-------|-----------------------------------|------|------|------|-------|------------------------------------|------|------|------|-------|-----------------------------------|------|------|------|-------|------------------|---------------|------|-----|------|
|                                        | Palmer Drive                       |      |      |      |       | Capitol Drive                     |      |      |      |       | Capitol Drive                      |      |      |      |       | Capitol Drive                     |      |      |      |       |                  |               |      |     |      |
|                                        | Right                              | Thru | Left | U-Tn | Total | Right                             | Thru | Left | U-Tn | Total | Right                              | Thru | Left | U-Tn | Total | Right                             | Thru | Left | U-Tn | Total |                  |               |      |     |      |
| AM Peak Period                         | 6:00 AM                            | 11   | 0    | 1    | 0     | 12                                | 1    | 6    | 0    | 0     | 7                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 7    | 1    | 0     | 0                | 8             | 27   | 125 | 0.80 |
|                                        | 6:15 AM                            | 12   | 0    | 0    | 0     | 12                                | 0    | 4    | 0    | 0     | 4                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 4    | 1    | 0     | 0                | 5             | 21   | 134 | 0.86 |
|                                        | 6:30 AM                            | 24   | 0    | 0    | 0     | 24                                | 0    | 5    | 0    | 0     | 5                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 8    | 2    | 0     | 0                | 10            | 39   | 160 | 0.85 |
|                                        | 6:45 AM                            | 18   | 0    | 0    | 0     | 18                                | 1    | 11   | 0    | 0     | 12                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 5    | 3    | 0     | 0                | 8             | 38   | 170 | 0.87 |
|                                        | 7:00 AM                            | 24   | 0    | 0    | 0     | 24                                | 0    | 8    | 0    | 0     | 8                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 3    | 1    | 0     | 0                | 4             | 36   | 190 | 0.82 |
|                                        | 7:15 AM                            | 26   | 0    | 0    | 0     | 26                                | 0    | 10   | 0    | 0     | 10                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 6    | 5    | 0     | 0                | 11            | 47   | 194 | 0.84 |
|                                        | 7:30 AM                            | 30   | 0    | 0    | 0     | 30                                | 0    | 8    | 0    | 0     | 8                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 7    | 4    | 0     | 0                | 11            | 49   | 186 | 0.80 |
|                                        | 7:45 AM                            | 23   | 0    | 2    | 0     | 25                                | 0    | 14   | 0    | 0     | 14                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 8    | 11   | 0     | 0                | 19            | 58   | 174 | 0.75 |
|                                        | 8:00 AM                            | 18   | 0    | 1    | 0     | 19                                | 1    | 11   | 0    | 0     | 12                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 7    | 2    | 0     | 0                | 9             | 40   | 158 | 0.94 |
|                                        | 8:15 AM                            | 18   | 0    | 0    | 0     | 18                                | 0    | 13   | 0    | 0     | 13                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 5    | 3    | 0     | 0                | 8             | 39   |     |      |
|                                        | 8:30 AM                            | 16   | 0    | 1    | 0     | 17                                | 0    | 11   | 0    | 0     | 11                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 5    | 4    | 0     | 0                | 9             | 37   |     |      |
|                                        | 8:45 AM                            | 15   | 0    | 2    | 0     | 17                                | 0    | 10   | 0    | 0     | 10                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 11   | 4    | 0     | 0                | 15            | 42   |     |      |
|                                        | 9:00 AM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
| 9:15 AM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:30 AM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:45 AM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| Midday Peak Period                     | 10:00 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 10:15 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 10:30 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 10:45 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 11:00 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 11:15 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 11:30 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 11:45 AM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 12:00 PM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 12:15 PM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 12:30 PM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 12:45 PM                           | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 1:00 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 1:15 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 1:30 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 1:45 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
| PM Peak Period                         | 2:00 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 2:15 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 2:30 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 2:45 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 3:00 PM                            | 10   | 0    | 2    | 0     | 12                                | 1    | 11   | 0    | 0     | 12                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 19   | 17   | 0     | 0                | 36            | 60   | 255 | 0.85 |
|                                        | 3:15 PM                            | 20   | 0    | 1    | 0     | 21                                | 3    | 15   | 0    | 0     | 18                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 13   | 23   | 0     | 0                | 36            | 75   | 266 | 0.89 |
|                                        | 3:30 PM                            | 14   | 0    | 0    | 0     | 14                                | 2    | 10   | 0    | 0     | 12                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 13   | 27   | 0     | 0                | 40            | 66   | 255 | 0.90 |
|                                        | 3:45 PM                            | 11   | 0    | 0    | 0     | 11                                | 3    | 11   | 0    | 0     | 14                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 17   | 12   | 0     | 0                | 29            | 54   | 255 | 0.90 |
|                                        | 4:00 PM                            | 17   | 0    | 3    | 0     | 20                                | 2    | 17   | 0    | 0     | 19                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 23   | 9    | 0     | 0                | 32            | 71   | 266 | 0.94 |
|                                        | 4:15 PM                            | 10   | 0    | 2    | 0     | 12                                | 3    | 12   | 0    | 0     | 15                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 23   | 14   | 0     | 0                | 37            | 64   | 270 | 0.90 |
|                                        | 4:30 PM                            | 21   | 0    | 0    | 0     | 21                                | 1    | 10   | 0    | 0     | 11                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 10   | 24   | 0     | 0                | 34            | 66   | 285 | 0.90 |
|                                        | 4:45 PM                            | 12   | 0    | 3    | 0     | 15                                | 1    | 9    | 0    | 0     | 10                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 18   | 22   | 0     | 0                | 40            | 65   | 291 | 0.92 |
|                                        | 5:00 PM                            | 16   | 0    | 1    | 0     | 17                                | 2    | 12   | 0    | 0     | 14                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 13   | 31   | 0     | 0                | 44            | 75   | 286 | 0.91 |
|                                        | 5:15 PM                            | 11   | 0    | 4    | 0     | 15                                | 2    | 13   | 0    | 0     | 15                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 20   | 29   | 0     | 0                | 49            | 79   |     |      |
|                                        | 5:30 PM                            | 16   | 0    | 1    | 0     | 17                                | 1    | 4    | 0    | 0     | 5                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 19   | 31   | 0     | 0                | 50            | 72   |     |      |
|                                        | 5:45 PM                            | 8    | 0    | 1    | 0     | 9                                 | 4    | 14   | 0    | 0     | 18                                 | 0    | 0    | 0    | 0     | 0                                 | 0    | 9    | 24   | 0     | 0                | 33            | 60   |     |      |
|                                        | 6:00 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 6:15 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 6:30 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 6:45 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 7:00 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 7:15 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 7:30 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
|                                        | 7:45 PM                            | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             | 0    |     |      |
| 8:00 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 8:15 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 8:30 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 8:45 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:00 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:15 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:30 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| 9:45 PM                                | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                                  | 0    | 0    | 0    | 0     | 0                                 | 0    | 0    | 0    | 0     | 0                | 0             |      |     |      |
| Totals                                 |                                    | 401  | 0    | 25   | 0     | 426                               | 28   | 249  | 0    | 0     | 277                                | 0    | 0    | 0    | 0     | 0                                 | 0    | 273  | 304  | 0     | 0                | 577           | 1280 |     |      |

#### Peak Hour All Vehicle Volume Summary

| Hourly Time Period | Start Time | From North |
|--------------------|------------|------------|
|--------------------|------------|------------|

# Intersection Traffic Volume Report

## 15-Minute Heavy Vehicle Data

### Palmer Drive and Capitol Drive

| Count Basics                   |                        |             | Page 9 of 13       |
|--------------------------------|------------------------|-------------|--------------------|
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session |
| Total Number of Hours Counted: | 6                      | Non-Holiday | No Special Events  |

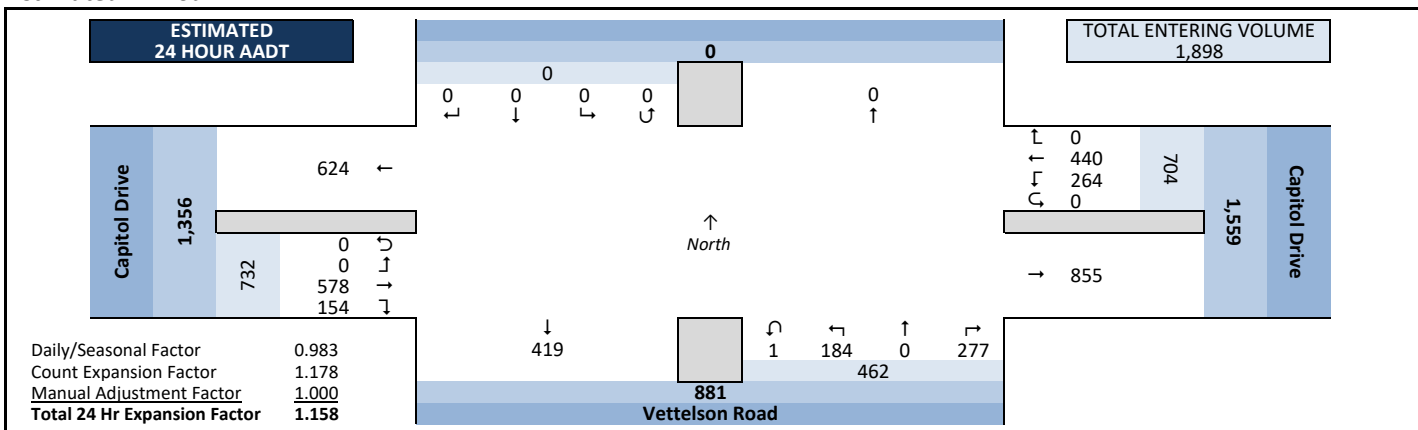


### 15-Minute Heavy Vehicle Data

| 15-Minute<br>Time Period<br>Start Time | From North   |      |      |      |       |       |      | From East     |      |       |       |      | From South    |      |       |       |      | From West     |      |       |    |    | 15-Min<br>Totals | Hourly<br>Sum |
|----------------------------------------|--------------|------|------|------|-------|-------|------|---------------|------|-------|-------|------|---------------|------|-------|-------|------|---------------|------|-------|----|----|------------------|---------------|
|                                        | Palmer Drive |      |      |      |       |       |      | Capitol Drive |      |       |       |      | Capitol Drive |      |       |       |      | Capitol Drive |      |       |    |    |                  |               |
|                                        | Right        | Thru | Left | U-Tn | Total | Right | Thru | Left          | U-Tn | Total | Right | Thru | Left          | U-Tn | Total | Right | Thru | Left          | U-Tn | Total |    |    |                  |               |
| AM Peak Period                         | 6:00 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 2    | 0     | 0     | 2    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 2  | 5                |               |
|                                        | 6:15 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 4  |                  |               |
|                                        | 6:30 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1  | 4  |                  |               |
|                                        | 6:45 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 6  |                  |               |
|                                        | 7:00 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 5  |                  |               |
|                                        | 7:15 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 8  |                  |               |
|                                        | 7:30 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 3             | 0    | 0     | 3  | 12 |                  |               |
|                                        | 7:45 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 8  |                  |               |
|                                        | 8:00 AM      | 1    | 0    | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 2             | 1    | 0     | 3  | 10 |                  |               |
|                                        | 8:15 AM      | 2    | 0    | 0    | 0     | 2     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 1    | 0     | 1  | 4  |                  |               |
|                                        | 8:30 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 8:45 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1  | 2  |                  |               |
|                                        | 9:00 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 9:15 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 9:30 AM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
| 9:45 AM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| Midday Peak Period                     | 10:00 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 10:15 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 10:30 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 10:45 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 11:00 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 11:15 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 11:30 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 11:45 AM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 12:00 PM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 12:15 PM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 12:30 PM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 12:45 PM     | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 1:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 1:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 1:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
| 1:45 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| PM Peak Period                         | 2:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 2:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 2:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 2:45 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 3:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 10 |                  |               |
|                                        | 3:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1  | 11 |                  |               |
|                                        | 3:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 2             | 0    | 0     | 2     | 0    | 0             | 0    | 0     | 0     | 0    | 4             | 0    | 0     | 4  | 12 |                  |               |
|                                        | 3:45 PM      | 1    | 0    | 0    | 0     | 1     | 1    | 0             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1  | 7  |                  |               |
|                                        | 4:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1  | 8  |                  |               |
|                                        | 4:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 1    | 0     | 2  | 10 |                  |               |
|                                        | 4:30 PM      | 1    | 0    | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 10 |                  |               |
|                                        | 4:45 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 3             | 0    | 0     | 3  | 10 |                  |               |
|                                        | 5:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 3             | 0    | 0     | 3  | 7  |                  |               |
|                                        | 5:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 1             | 1    | 0     | 2  | 2  |                  |               |
|                                        | 5:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 1    | 0     | 1  | 1  |                  |               |
|                                        | 5:45 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 1             | 0    | 0     | 1     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 1  |                  |               |
|                                        | 6:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 6:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 6:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 6:45 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 7:00 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 7:15 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 7:30 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
|                                        | 7:45 PM      | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  | 0  |                  |               |
| 8:00 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 8:15 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 8:30 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 8:45 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 9:00 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 9:15 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 9:30 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| 9:45 PM                                | 0            | 0    | 0    | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0     | 0    | 0             | 0    | 0     | 0  |    |                  |               |
| Totals                                 |              | 5    | 0    | 0    | 0     | 5     | 1    | 12            | 0    | 0     | 13    | 0    | 0             | 0    | 0     | 0     | 0    | 22            | 5    | 0     | 27 | 45 |                  |               |

### Peak Hour Heavy Vehicle Volume Summary

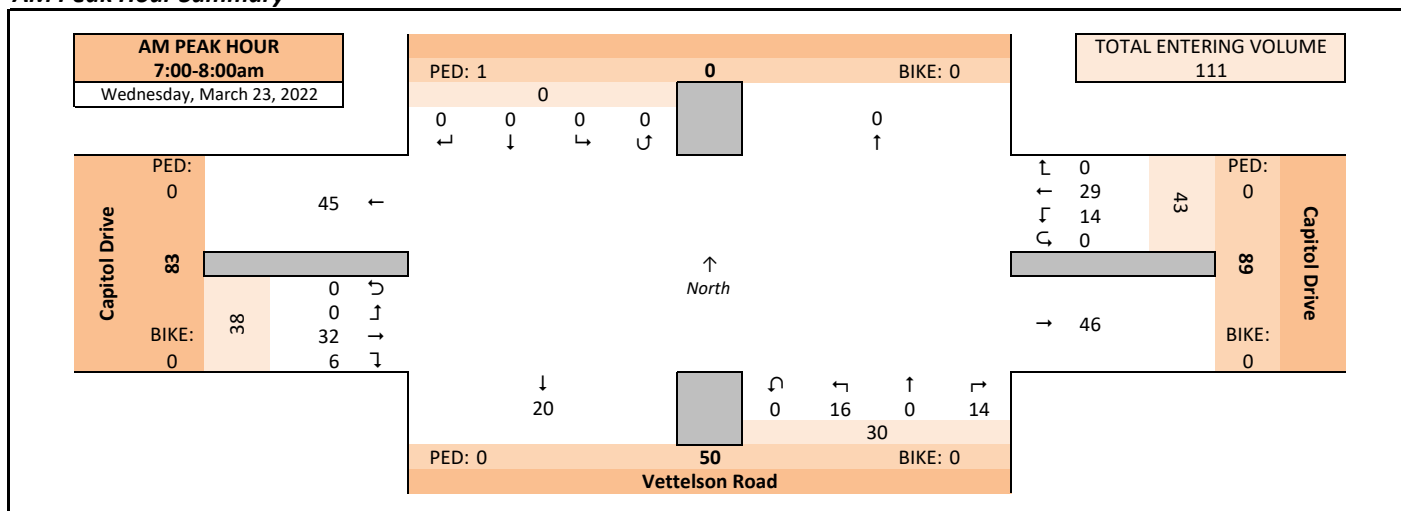
| Hourly<br>Time Period<br>Start Time | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       | Total<br>Hourly<br>Volume |    |
|-------------------------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|---------------------------|----|
|                                     | Palmer Drive    |      |      |      |       | Capitol Drive  |      |      |      |       | Capitol Drive   |      |      |      |       | Capitol Drive  |      |      |      |       |                           |    |
|                                     | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total |                           |    |
| AM 7:00 AM                          | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 2    | 0    | 0     | 2               | 0    | 0    | 0    | 0     | 0              | 0    | 3    | 0    | 0     | 3                         | 5  |
| MD 12:00 PM                         | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0               | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0                         | 0  |
| PM 4:30 PM                          | 1               | 0    | 0    | 0    | 1     | 0              | 0    | 1    | 0    | 0     | 1               | 0    | 0    | 0    | 0     | 0              | 0    | 7    | 1    | 0     | 8                         | 10 |



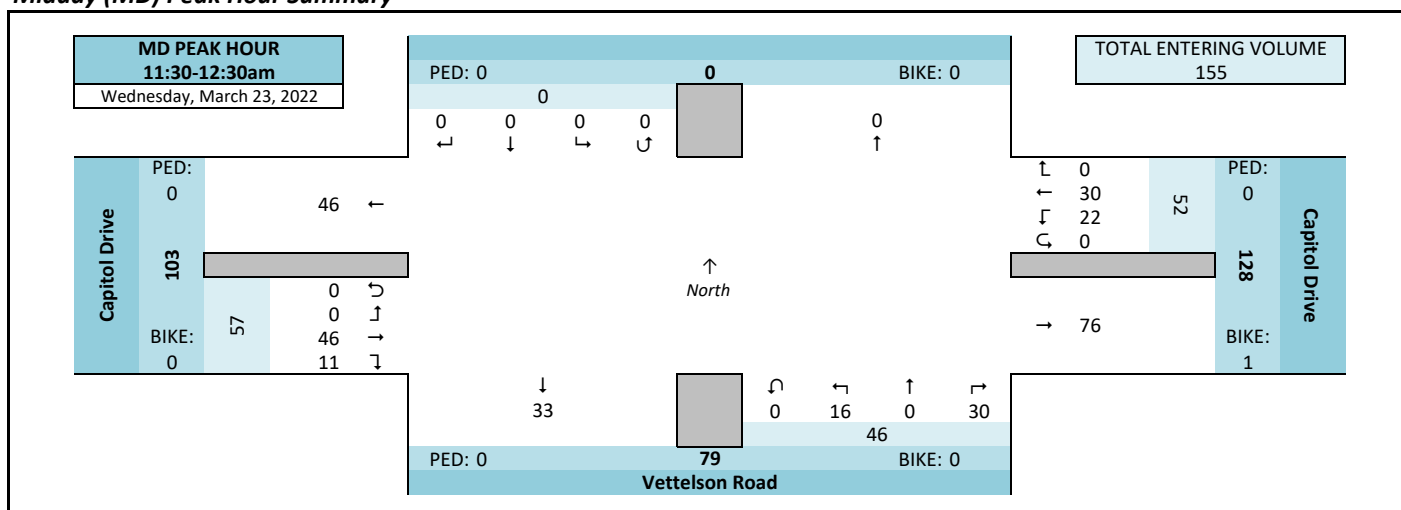
### Peak Hour Volume Graphical Summary

***Vettelson Road and Capitol Drive***

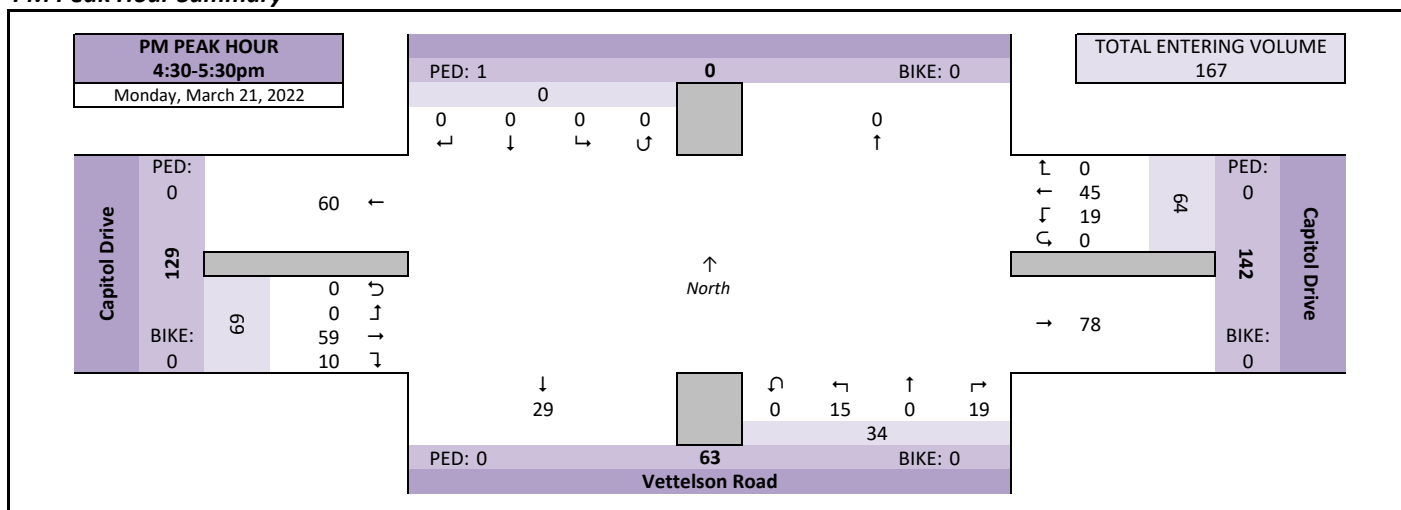
### AM Peak Hour Summary



### Midday (MD) Peak Hour Summary



### PM Peak Hour Summary



### ***Vettelson Road and Capitol Drive***

|                                |                        |             |                     |
|--------------------------------|------------------------|-------------|---------------------|
| <b>Count Basics</b>            |                        |             | <b>Page 3 of 13</b> |
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session  |
| Total Number of Hours Counted: | 13                     | Non-Holiday | No Special Events   |



### Peak Hour Volumes, Truck Percentages, and PHFs

| Wednesday, March 23, 2022 |                       | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       | Totals |
|---------------------------|-----------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|--------|
| AM Peak Hour              | AM Peak Hour          | Capitol Drive   |      |      |      |       |                |      |      |      |       | Vettelson Road  |      |      |      |       | Capitol Drive  |      |      |      |       |        |
|                           | Start Time            | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total |        |
|                           | 7:00 AM               | 0               | 0    | 0    | 0    | 0     | 0              | 11   | 2    | 0    | 13    | 3               | 0    | 6    | 0    | 9     | 0              | 10   | 0    | 0    | 10    | 32     |
|                           | 7:15 AM               | 0               | 0    | 0    | 0    | 0     | 0              | 2    | 3    | 0    | 5     | 1               | 0    | 5    | 0    | 6     | 1              | 5    | 0    | 0    | 6     | 17     |
|                           | 7:30 AM               | 0               | 0    | 0    | 0    | 0     | 0              | 8    | 4    | 0    | 12    | 3               | 0    | 2    | 0    | 5     | 2              | 6    | 0    | 0    | 8     | 25     |
|                           | 7:45 AM               | 0               | 0    | 0    | 0    | 0     | 0              | 8    | 5    | 0    | 13    | 7               | 0    | 3    | 0    | 10    | 3              | 11   | 0    | 0    | 14    | 37     |
|                           | Peak Hour Volume      | 0               | 0    | 0    | 0    | 0     | 0              | 29   | 14   | 0    | 43    | 14              | 0    | 16   | 0    | 30    | 6              | 32   | 0    | 0    | 38    | 111    |
|                           | Rounded Hourly Volume | 0               | 0    | 0    | 0    | 0     | 0              | 30   | 15   | 0    | 45    | 15              | 0    | 15   | 0    | 30    | 5              | 30   | 0    | 0    | 35    | 110    |
|                           | % Single Unit Trucks  | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 6.9  | 0.0  | 0.0  | 4.7   | 0.0             | 0.0  | 6.2  | 0.0  | 3.3   | 16.7           | 6.2  | 0.0  | 0.0  | 7.9   | 5.4    |
|                           | % Heavy Trucks        | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 12.5 | 0.0  | 6.7   | 0.0            | 3.1  | 0.0  | 0.0  | 2.6   | 2.7    |
| % Trucks (Total)          | 0.0                   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 6.9            | 0.0  | 0.0  | 4.7  | 0.0   | 0.0             | 18.7 | 0.0  | 10.0 | 16.7  | 9.4            | 0.0  | 0.0  | 10.5 | 8.1   |        |
| Peak Hour Factor (PHF)    | 0.00                  | 0.00            | 0.00 | 0.00 | 0.00 | 0.00  | 0.66           | 0.70 | 0.00 | 0.83 | 0.50  | 0.00            | 0.67 | 0.00 | 0.75 | 0.50  | 0.73           | 0.00 | 0.00 | 0.68 | 0.75  |        |

| Wednesday, March 23, 2022 |                       | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       | Totals |  |
|---------------------------|-----------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|--------|--|
| Midday (MD) Peak Hour     | MD Peak Hour          | Capitol Drive   |      |      |      |       | Capitol Drive  |      |      |      |       | Vettelson Road  |      |      |      |       | Capitol Drive  |      |      |      |       |        |  |
|                           | Start Time            | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total |        |  |
|                           | 11:30 AM              | 0               | 0    | 0    | 0    | 0     | 0              | 7    | 3    | 0    | 10    | 12              | 0    | 5    | 0    | 17    | 2              | 9    | 0    | 0    | 11    | 38     |  |
|                           | 11:45 AM              | 0               | 0    | 0    | 0    | 0     | 0              | 8    | 4    | 0    | 12    | 9               | 0    | 3    | 0    | 12    | 3              | 12   | 0    | 0    | 15    | 39     |  |
|                           | 12:00 PM              | 0               | 0    | 0    | 0    | 0     | 0              | 8    | 8    | 0    | 16    | 6               | 0    | 4    | 0    | 10    | 4              | 10   | 0    | 0    | 14    | 40     |  |
|                           | 12:15 PM              | 0               | 0    | 0    | 0    | 0     | 0              | 7    | 7    | 0    | 14    | 3               | 0    | 4    | 0    | 7     | 2              | 15   | 0    | 0    | 17    | 38     |  |
|                           | Peak Hour Volume      | 0               | 0    | 0    | 0    | 0     | 0              | 30   | 22   | 0    | 52    | 30              | 0    | 16   | 0    | 46    | 11             | 46   | 0    | 0    | 57    | 155    |  |
|                           | Rounded Hourly Volume | 0               | 0    | 0    | 0    | 0     | 0              | 30   | 20   | 0    | 50    | 30              | 0    | 15   | 0    | 45    | 10             | 45   | 0    | 0    | 55    | 150    |  |
|                           | % Single Unit Trucks  | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 6.7  | 9.1  | 0.0  | 7.7   | 6.7             | 0.0  | 6.2  | 0.0  | 6.5   | 9.1            | 6.5  | 0.0  | 0.0  | 7.0   | 7.1    |  |
|                           | % Heavy Trucks        | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0    |  |
| % Trucks (Total)          | 0.0                   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 6.7            | 9.1  | 0.0  | 7.7  | 6.7   | 0.0             | 6.2  | 0.0  | 6.5  | 9.1   | 6.5            | 0.0  | 0.0  | 7.0  | 7.1   |        |  |
| Peak Hour Factor (PHF)    | 0.00                  | 0.00            | 0.00 | 0.00 | 0.00 | 0.00  | 0.94           | 0.69 | 0.00 | 0.81 | 0.62  | 0.00            | 0.80 | 0.00 | 0.68 | 0.69  | 0.77           | 0.00 | 0.00 | 0.84 | 0.97  |        |  |

| Monday, March 21, 2022 |                         | ↓<br>From North |      |      |      |       | ←<br>From East |      |      |      |       | ↑<br>From South |      |      |      |       | →<br>From West |      |      |      |       |        |
|------------------------|-------------------------|-----------------|------|------|------|-------|----------------|------|------|------|-------|-----------------|------|------|------|-------|----------------|------|------|------|-------|--------|
| PM Peak Hour           | PM Peak Hour Start Time |                 |      |      |      |       | Capitol Drive  |      |      |      |       | Vettelson Road  |      |      |      |       | Capitol Drive  |      |      |      |       |        |
|                        |                         | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right           | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Totals |
|                        | 4:30 PM                 | 0               | 0    | 0    | 0    | 0     | 0              | 11   | 6    | 0    | 17    | 4               | 0    | 4    | 0    | 8     | 3              | 22   | 0    | 0    | 25    | 50     |
|                        | 4:45 PM                 | 0               | 0    | 0    | 0    | 0     | 0              | 10   | 4    | 0    | 14    | 2               | 0    | 2    | 0    | 4     | 1              | 10   | 0    | 0    | 11    | 29     |
|                        | 5:00 PM                 | 0               | 0    | 0    | 0    | 0     | 0              | 12   | 7    | 0    | 19    | 8               | 0    | 5    | 0    | 13    | 3              | 14   | 0    | 0    | 17    | 49     |
|                        | 5:15 PM                 | 0               | 0    | 0    | 0    | 0     | 0              | 12   | 2    | 0    | 14    | 5               | 0    | 4    | 0    | 9     | 3              | 13   | 0    | 0    | 16    | 39     |
|                        | Peak Hour Volume        | 0               | 0    | 0    | 0    | 0     | 0              | 45   | 19   | 0    | 64    | 19              | 0    | 15   | 0    | 34    | 10             | 59   | 0    | 0    | 69    | 167    |
|                        | Rounded Hourly Volume   | 0               | 0    | 0    | 0    | 0     | 0              | 45   | 20   | 0    | 65    | 20              | 0    | 15   | 0    | 35    | 10             | 60   | 0    | 0    | 70    | 170    |
|                        | % Single Unit Trucks    | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 6.8  | 0.0  | 0.0  | 5.8   | 2.4    |
| % Heavy Trucks         | 0.0                     | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   |        |
| % Trucks (Total)       | 0.0                     | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0            | 0.0  | 0.0  | 0.0  | 0.0   | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 6.8            | 0.0  | 0.0  | 5.8  | 2.4   |        |
| Peak Hour Factor (PHF) | 0.00                    | 0.00            | 0.00 | 0.00 | 0.00 | 0.00  | 0.94           | 0.68 | 0.00 | 0.84 | 0.59  | 0.00            | 0.75 | 0.00 | 0.65 | 0.83  | 0.67           | 0.00 | 0.00 | 0.69 | 0.83  |        |

### Peak Hour Pedestrian and Bicyclist Volumes

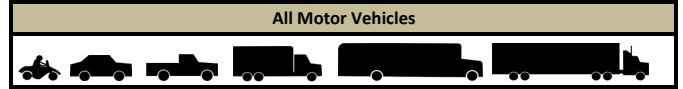
[illegible]

# Intersection Traffic Volume Report

|                                |                        |             |                    |  |
|--------------------------------|------------------------|-------------|--------------------|--|
| Count Basics                   |                        |             | Page 5 of 13       |  |
| Start Date:                    | Monday, March 21, 2022 | Weekday     | Schools in Session |  |
| Total Number of Hours Counted: | 13                     | Non-Holiday | No Special Events  |  |

## 15-Minute Motor Vehicle Data

### Vettelson Road and Capitol Drive



#### 15-Minute Motor Vehicle Data

| 15-Minute<br>Time Period<br>Start Time | From North |      |      |      |       | From East |      |      |      |       | From South |      |      |      |       | From West |      |      |      |       | 15-Min<br>Totals | Hourly<br>Sum | PHF |      |
|----------------------------------------|------------|------|------|------|-------|-----------|------|------|------|-------|------------|------|------|------|-------|-----------|------|------|------|-------|------------------|---------------|-----|------|
|                                        |            |      |      |      |       |           |      |      |      |       |            |      |      |      |       |           |      |      |      |       |                  |               |     |      |
|                                        | Right      | Thru | Left | U-Tn | Total | Right     | Thru | Left | U-Tn | Total | Right      | Thru | Left | U-Tn | Total | Right     | Thru | Left | U-Tn | Total |                  |               |     |      |
| AM Peak Period                         | 6:00 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 1    | 0     | 6          | 1    | 0    | 1    | 0     | 2         | 0    | 5    | 0    | 0     | 5                | 13            | 75  | 0.72 |
|                                        | 6:15 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 0    | 0     | 5          | 5    | 0    | 3    | 0     | 8         | 1    | 3    | 0    | 0     | 4                | 17            | 94  | 0.73 |
|                                        | 6:30 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 11   | 1    | 0     | 12         | 5    | 0    | 3    | 0     | 8         | 1    | 5    | 0    | 0     | 6                | 26            | 94  | 0.73 |
|                                        | 6:45 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 6    | 2    | 0     | 8          | 0    | 0    | 4    | 0     | 4         | 1    | 6    | 0    | 0     | 7                | 19            | 93  | 0.73 |
|                                        | 7:00 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 11   | 2    | 0     | 13         | 3    | 0    | 6    | 0     | 9         | 0    | 10   | 0    | 0     | 10               | 32            | 111 | 0.75 |
|                                        | 7:15 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 2    | 3    | 0     | 5          | 1    | 0    | 5    | 0     | 6         | 1    | 5    | 0    | 0     | 6                | 17            | 85  | 0.57 |
|                                        | 7:30 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 4    | 0     | 12         | 3    | 0    | 2    | 0     | 5         | 2    | 6    | 0    | 0     | 8                | 25            | 89  | 0.60 |
|                                        | 7:45 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 5    | 0     | 13         | 7    | 0    | 3    | 0     | 10        | 3    | 11   | 0    | 0     | 14               | 37            | 84  | 0.57 |
|                                        | 8:00 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 1    | 0     | 1          | 0    | 0    | 2    | 0     | 2         | 1    | 2    | 0    | 0     | 3                | 6             | 77  | 0.64 |
|                                        | 8:15 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 6    | 3    | 0     | 9          | 3    | 0    | 3    | 0     | 6         | 0    | 6    | 0    | 0     | 6                | 21            | 96  | 0.80 |
|                                        | 8:30 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 2    | 1    | 0     | 3          | 4    | 0    | 3    | 0     | 7         | 3    | 7    | 0    | 0     | 10               | 20            | 102 | 0.85 |
|                                        | 8:45 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 4    | 0     | 8          | 4    | 0    | 4    | 1     | 9         | 2    | 11   | 0    | 0     | 13               | 30            | 116 | 0.85 |
|                                        | 9:00 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 6    | 0     | 11         | 4    | 0    | 4    | 0     | 8         | 1    | 5    | 0    | 0     | 6                | 25            | 113 | 0.83 |
|                                        | 9:15 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 4    | 0     | 9          | 4    | 0    | 3    | 0     | 7         | 2    | 9    | 0    | 0     | 11               | 27            | 112 | 0.82 |
|                                        | 9:30 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 2    | 0     | 10         | 5    | 0    | 7    | 0     | 12        | 2    | 10   | 0    | 0     | 12               | 34            | 118 | 0.87 |
|                                        | 9:45 AM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 7    | 0     | 11         | 5    | 0    | 1    | 0     | 6         | 4    | 6    | 0    | 0     | 10               | 27            | 107 | 0.81 |
| Midday Peak Period                     | 10:00 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 6    | 0     | 14         | 2    | 0    | 3    | 0     | 5         | 1    | 4    | 0    | 0     | 5                | 24            | 114 | 0.84 |
|                                        | 10:15 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 4    | 0     | 11         | 4    | 0    | 4    | 0     | 8         | 1    | 13   | 0    | 0     | 14               | 33            | 120 | 0.88 |
|                                        | 10:30 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 4    | 0     | 11         | 3    | 0    | 3    | 0     | 6         | 0    | 6    | 0    | 0     | 6                | 23            | 114 | 0.84 |
|                                        | 10:45 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 3    | 0     | 11         | 14   | 0    | 2    | 0     | 16        | 1    | 6    | 0    | 0     | 7                | 34            | 129 | 0.85 |
|                                        | 11:00 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 5    | 0     | 12         | 4    | 0    | 3    | 0     | 7         | 4    | 7    | 0    | 0     | 11               | 30            | 134 | 0.86 |
|                                        | 11:15 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 6    | 2    | 0     | 8          | 2    | 0    | 5    | 0     | 7         | 3    | 9    | 0    | 0     | 12               | 27            | 144 | 0.90 |
|                                        | 11:30 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 3    | 0     | 10         | 12   | 0    | 5    | 0     | 17        | 2    | 9    | 0    | 0     | 11               | 38            | 155 | 0.97 |
|                                        | 11:45 AM   | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 4    | 0     | 12         | 9    | 0    | 3    | 0     | 12        | 3    | 12   | 0    | 0     | 15               | 39            | 144 | 0.90 |
|                                        | 12:00 PM   | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 8    | 0     | 16         | 6    | 0    | 4    | 0     | 10        | 4    | 10   | 0    | 0     | 14               | 40            | 143 | 0.89 |
|                                        | 12:15 PM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 7    | 0     | 14         | 3    | 0    | 4    | 0     | 7         | 2    | 15   | 0    | 0     | 17               | 38            | 133 | 0.88 |
|                                        | 12:30 PM   | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 6    | 0     | 13         | 2    | 0    | 3    | 0     | 5         | 1    | 8    | 0    | 0     | 9                | 27            | 128 | 0.84 |
|                                        | 12:45 PM   | 0    | 0    | 0    | 0     | 0         | 0    | 15   | 6    | 0     | 21         | 4    | 0    | 3    | 0     | 7         | 2    | 8    | 0    | 0     | 10               | 38            | 138 | 0.91 |
|                                        | 1:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 2    | 9    | 0     | 11         | 5    | 0    | 4    | 0     | 9         | 5    | 5    | 0    | 0     | 10               | 30            | 139 | 0.89 |
|                                        | 1:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 8    | 0     | 16         | 5    | 0    | 1    | 0     | 6         | 4    | 7    | 0    | 0     | 11               | 33            | 143 | 0.92 |
|                                        | 1:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 6    | 0     | 10         | 9    | 0    | 2    | 0     | 11        | 4    | 12   | 0    | 0     | 16               | 37            | 152 | 0.90 |
|                                        | 1:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 13   | 4    | 0     | 17         | 4    | 0    | 0    | 0     | 4         | 4    | 14   | 0    | 0     | 18               | 39            | 148 | 0.88 |
| PM Peak Period                         | 2:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 9    | 0     | 13         | 5    | 0    | 3    | 0     | 8         | 6    | 7    | 0    | 0     | 13               | 34            | 139 | 0.83 |
|                                        | 2:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 5    | 0     | 12         | 3    | 0    | 4    | 0     | 7         | 4    | 19   | 0    | 0     | 23               | 42            | 140 | 0.83 |
|                                        | 2:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 9    | 6    | 0     | 15         | 5    | 0    | 2    | 0     | 7         | 4    | 7    | 0    | 0     | 11               | 33            | 126 | 0.90 |
|                                        | 2:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 6    | 4    | 0     | 10         | 5    | 0    | 1    | 0     | 6         | 6    | 8    | 0    | 0     | 14               | 30            | 136 | 0.79 |
|                                        | 3:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 15   | 2    | 0     | 17         | 4    | 0    | 2    | 0     | 6         | 0    | 12   | 0    | 0     | 12               | 35            | 135 | 0.78 |
|                                        | 3:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 2    | 0     | 6          | 8    | 0    | 1    | 0     | 9         | 0    | 13   | 0    | 0     | 13               | 28            | 145 | 0.81 |
|                                        | 3:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 12   | 6    | 0     | 18         | 4    | 0    | 2    | 0     | 6         | 1    | 18   | 0    | 0     | 19               | 43            | 167 | 0.84 |
|                                        | 3:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 7    | 4    | 0     | 11         | 6    | 0    | 4    | 0     | 10        | 2    | 6    | 0    | 0     | 8                | 29            | 174 | 0.87 |
|                                        | 4:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 10   | 6    | 0     | 16         | 5    | 0    | 3    | 0     | 8         | 3    | 18   | 0    | 0     | 21               | 45            | 174 | 0.87 |
|                                        | 4:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 11   | 6    | 0     | 17         | 5    | 0    | 8    | 0     | 13        | 5    | 15   | 0    | 0     | 20               | 50            | 178 | 0.89 |
|                                        | 4:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 11   | 6    | 0     | 17         | 4    | 0    | 4    | 0     | 8         | 3    | 22   | 0    | 0     | 25               | 50            | 167 | 0.84 |
|                                        | 4:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 10   | 4    | 0     | 14         | 2    | 0    | 2    | 0     | 4         | 1    | 10   | 0    | 0     | 11               | 29            | 148 | 0.76 |
|                                        | 5:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 12   | 7    | 0     | 19         | 8    | 0    | 5    | 0     | 13        | 3    | 14   | 0    | 0     | 17               | 49            | 160 | 0.82 |
|                                        | 5:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 12   | 2    | 0     | 14         | 5    | 0    | 4    | 0     | 9         | 3    | 13   | 0    | 0     | 16               | 39            | 148 | 0.90 |
|                                        | 5:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 6    | 2    | 0     | 8          | 3    | 0    | 2    | 0     | 5         | 4    | 14   | 0    | 0     | 18               | 31            | 144 | 0.88 |
|                                        | 5:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 10   | 4    | 0     | 14         | 6    | 0    | 1    | 0     | 7         | 4    | 16   | 0    | 0     | 20               | 41            | 140 | 0.85 |
|                                        | 6:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 5    | 0     | 10         | 4    | 0    | 2    | 0     | 6         | 7    | 14   | 0    | 0     | 21               | 37            | 125 | 0.84 |
|                                        | 6:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 8    | 6    | 0     | 14         | 6    | 0    | 5    | 0     | 11        | 4    | 6    | 0    | 0     | 10               | 35            |     |      |
|                                        | 6:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 5    | 5    | 0     | 10         | 4    | 0    | 0    | 0     | 4         | 4    | 9    | 0    | 0     | 13               | 27            |     |      |
|                                        | 6:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 4    | 6    | 0     | 10         | 5    | 0    | 1    | 0     | 6         | 4    | 6    | 0    | 0     | 10               | 26            |     |      |
|                                        | 7:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 7:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 7:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 7:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 8:00 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 8:15 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 8:30 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
|                                        | 8:45 PM    | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                | 0             |     |      |
| 9:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                |               |     |      |
| 9:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                |               |     |      |
| 9:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                |               |     |      |
| 9:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0     | 0         | 0    | 0    | 0    | 0     | 0                |               |     |      |
| Totals                                 | 0          | 0    | 0    | 0    | 0     | 0         | 380  | 228  | 0    | 608   | 239        | 0    | 159  | 1    | 399   | 133       | 499  | 0    | 0    | 632   | 1639             |               |     |      |

#### Peak Hour All Vehicle Volume Summary

| Hourly Time Period | Start Time | From North |  |  |  |  |
|--------------------|------------|------------|--|--|--|--|
|--------------------|------------|------------|--|--|--|--|

## Intersection Traffic Volume Report

### 15-Minute Heavy Vehicle Data

### ***Vettelson Road and Capitol Drive***

## 15-Minute Heavy Vehicle Data

|                                   |                        |             |                     |
|-----------------------------------|------------------------|-------------|---------------------|
| <b>Count Basics</b>               |                        |             | <b>Page 9 of 13</b> |
| Start Date:                       | Monday, March 21, 2022 | Weekday     | Schools in Session  |
| Total Number of Hours Counted: 13 |                        | Non-Holiday | No Special Events   |

### Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)



| 15-Minute<br>Time Period<br>Start Time | From North |      |      |      |       | From East     |      |      |      |       | From South     |      |      |      |       | From West     |      |      |      |       | 15-Min<br>Totals | Hourly<br>Sum |    |
|----------------------------------------|------------|------|------|------|-------|---------------|------|------|------|-------|----------------|------|------|------|-------|---------------|------|------|------|-------|------------------|---------------|----|
|                                        |            |      |      |      |       | Capitol Drive |      |      |      |       | Vettelson Road |      |      |      |       | Capitol Drive |      |      |      |       |                  |               |    |
|                                        | Right      | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total |                  |               |    |
| AM Peak Period                         | 6:00 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 3    | 0    | 0     | 3              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 3             | 10 |
|                                        | 6:15 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 2    | 0    | 2     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 2             | 10 |
|                                        | 6:30 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 3    | 0    | 3     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 3             | 12 |
|                                        | 6:45 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 2             | 10 |
|                                        | 7:00 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 2    | 0    | 2     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 3             | 9  |
|                                        | 7:15 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 3    | 0    | 3     | 0             | 1    | 0    | 0    | 1     | 4                | 6             |    |
|                                        | 7:30 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 1             | 4  |
|                                        | 7:45 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 1    | 0    | 0    | 0     | 1                | 1             | 4  |
|                                        | 8:00 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 0             | 7  |
|                                        | 8:15 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 2    | 0    | 0     | 2                | 2             | 12 |
|                                        | 8:30 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 1             | 13 |
|                                        | 8:45 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 2              | 0    | 1    | 0    | 3     | 0             | 0    | 0    | 0    | 0     | 0                | 4             | 16 |
|                                        | 9:00 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 2    | 2     | 1              | 0    | 1    | 0    | 2     | 0             | 1    | 0    | 0    | 1     | 5                | 12            |    |
|                                        | 9:15 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 2    | 0    | 2     | 0              | 0    | 0    | 0    | 0     | 0             | 1    | 0    | 0    | 1     | 3                | 8             |    |
|                                        | 9:30 AM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 1    | 0    | 1     | 0             | 3    | 0    | 0    | 3     | 4                | 8             |    |
| 9:45 AM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 5             |    |
| Midday Peak Period                     | 10:00 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 1    | 0    | 0    | 1     | 1                | 6             |    |
|                                        | 10:15 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 0              | 0    | 0    | 0    | 0     | 0             | 2    | 0    | 0    | 2     | 3                | 5             |    |
|                                        | 10:30 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 1    | 0    | 1     | 0             | 0    | 0    | 0    | 0     | 1                | 3             |    |
|                                        | 10:45 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 1              | 0    | 0    | 0    | 1     | 0             | 0    | 0    | 0    | 0     | 1                | 5             |    |
|                                        | 11:00 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 8             |    |
|                                        | 11:15 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 1    | 0    | 0    | 1     | 1                | 9             |    |
|                                        | 11:30 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 2              | 0    | 0    | 0    | 2     | 0             | 1    | 0    | 0    | 1     | 3                | 11            |    |
|                                        | 11:45 AM   | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 0              | 0    | 0    | 0    | 0     | 1             | 2    | 0    | 0    | 3     | 4                | 8             |    |
|                                        | 12:00 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 1             | 4  |
|                                        | 12:15 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 2    | 2     | 0              | 0    | 1    | 0    | 1     | 0             | 0    | 0    | 0    | 0     | 3                | 5             |    |
|                                        | 12:30 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 3             |    |
|                                        | 12:45 PM   | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 3             |    |
|                                        | 1:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 1    | 0    | 1     | 1             | 0    | 0    | 0    | 1     | 2                | 4             |    |
|                                        | 1:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 1     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 1                | 2             |    |
|                                        | 1:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 3             |    |
| 1:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 1    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 1     | 7                |               |    |
| PM Peak Period                         | 2:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 6             |    |
|                                        | 2:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 1             | 1    | 0    | 0    | 2     | 2                | 8             |    |
|                                        | 2:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 2    | 0    | 2     | 0              | 0    | 0    | 0    | 0     | 0             | 2    | 0    | 0    | 2     | 4                | 8             |    |
|                                        | 2:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 7             |    |
|                                        | 3:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 2    | 0    | 0    | 2     | 2                | 7             |    |
|                                        | 3:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 2    | 0    | 0    | 2     | 2                | 8             |    |
|                                        | 3:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 3    | 0    | 0    | 3     | 3                | 8             |    |
|                                        | 3:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 7             |    |
|                                        | 4:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 3    | 0    | 0     | 3                | 7             |    |
|                                        | 4:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 1              | 0    | 0    | 0    | 1     | 0             | 1    | 0    | 0    | 1     | 2                | 5             |    |
|                                        | 4:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 2    | 0    | 0    | 2     | 2                | 4             |    |
|                                        | 4:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 2             |    |
|                                        | 5:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 2             |    |
|                                        | 5:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 1    | 0    | 0     | 1                | 2             |    |
|                                        | 5:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 2             |    |
|                                        | 5:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                | 2             |    |
|                                        | 6:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 1             | 0    | 0    | 0    | 1     | 1                | 2             |    |
|                                        | 6:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 1              | 0    | 0    | 0    | 1     | 0             | 0    | 0    | 0    | 0     | 1                |               |    |
|                                        | 6:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 6:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 7:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 7:15 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 7:30 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 7:45 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
|                                        | 8:00 PM    | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0                |               |    |
| 8:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 8:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 8:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 9:00 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 9:15 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 9:30 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| 9:45 PM                                | 0          | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     |                  |               |    |
| Totals                                 | 0          | 0    | 0    | 0    | 0     | 0             | 20   | 5    | 0    | 25    | 8              | 0    | 9    | 0    | 17    | 5             | 37   | 0    | 0    | 42    | 84               |               |    |

### Peak Hour Heavy Vehicle Volume Summary

| Hourly<br>Time Period<br>Start Time | From North    |      |      |      |       | From East      |      |      |      |       | From South    |      |      |      |       | From West |      |      |      |       | Total<br>Hourly<br>Volume |
|-------------------------------------|---------------|------|------|------|-------|----------------|------|------|------|-------|---------------|------|------|------|-------|-----------|------|------|------|-------|---------------------------|
|                                     |               |      |      |      |       |                |      |      |      |       |               |      |      |      |       |           |      |      |      |       |                           |
|                                     | Capitol Drive |      |      |      |       | Vettelson Road |      |      |      |       | Capitol Drive |      |      |      |       |           |      |      |      |       |                           |
|                                     | Right         | Thru | Left | U-Tn | Total | Right          | Thru | Left | U-Tn | Total | Right         | Thru | Left | U-Tn | Total | Right     | Thru | Left | U-Tn | Total |                           |
| AM 7:00 AM                          | 0             | 0    | 0    | 0    | 0     | 0              | 2    | 0    | 0    | 2     | 0             | 0    | 3    | 0    | 3     | 1         | 3    | 0    | 0    | 4     | 9                         |
| MD 11:30 AM                         | 0             | 0    | 0    | 0    | 0     | 0              | 2    | 2    | 0    | 4     | 2             | 0    | 1    | 0    | 3     | 1         | 3    | 0    | 0    | 4     | 11                        |
| PM 4:30 PM                          | 0             | 0    | 0    | 0    | 0     | 0              | 0    | 0    | 0    | 0     | 0             | 0    | 0    | 0    | 0     | 0         | 4    | 0    | 0    | 4     | 4                         |

**Hartland Kwik Trip TIA**  
**Heavy Vehicle Percentages, Peak Hour Factors**

| Intersection                                            | Traffic Control | Peak Hour | Heavy Vehicle Percentage |    |     |    | PHF  |
|---------------------------------------------------------|-----------------|-----------|--------------------------|----|-----|----|------|
|                                                         |                 |           | EB                       | WB | NB  | SB |      |
| #100<br>Capitol Drive (E/W) & STH 83 (N/S)              | Traffic Signal  | AM        | 2%                       | 1% | 10% | 5% | 0.75 |
|                                                         |                 | PM        | 1%                       | 2% | 1%  | 3% | 0.95 |
| #200<br>Capitol Drive (E/W) & Palmer Drive (N/S)        | Stop Sign       | AM        | 7%                       | 5% | 2%  | 2% | 0.82 |
|                                                         |                 | PM        | 5%                       | 2% | 2%  | 2% | 0.90 |
| #300<br>Capitol Drive (E/W) & South Site Driveway (N/S) | Stop Sign       | AM        | 7%                       | 5% | 2%  |    | 0.82 |
|                                                         |                 | PM        | 5%                       | 2% | 2%  |    | 0.90 |
| #400<br>Capitol Drive (E/W) & Vettelson Road (N/S)      | Stop Sign       | AM        | 11%                      | 5% | 10% | 2% | 0.75 |
|                                                         |                 | PM        | 6%                       | 1% | 1%  | 2% | 0.83 |

1% HV Coded in Synchro for all HV% calculated to be 0%

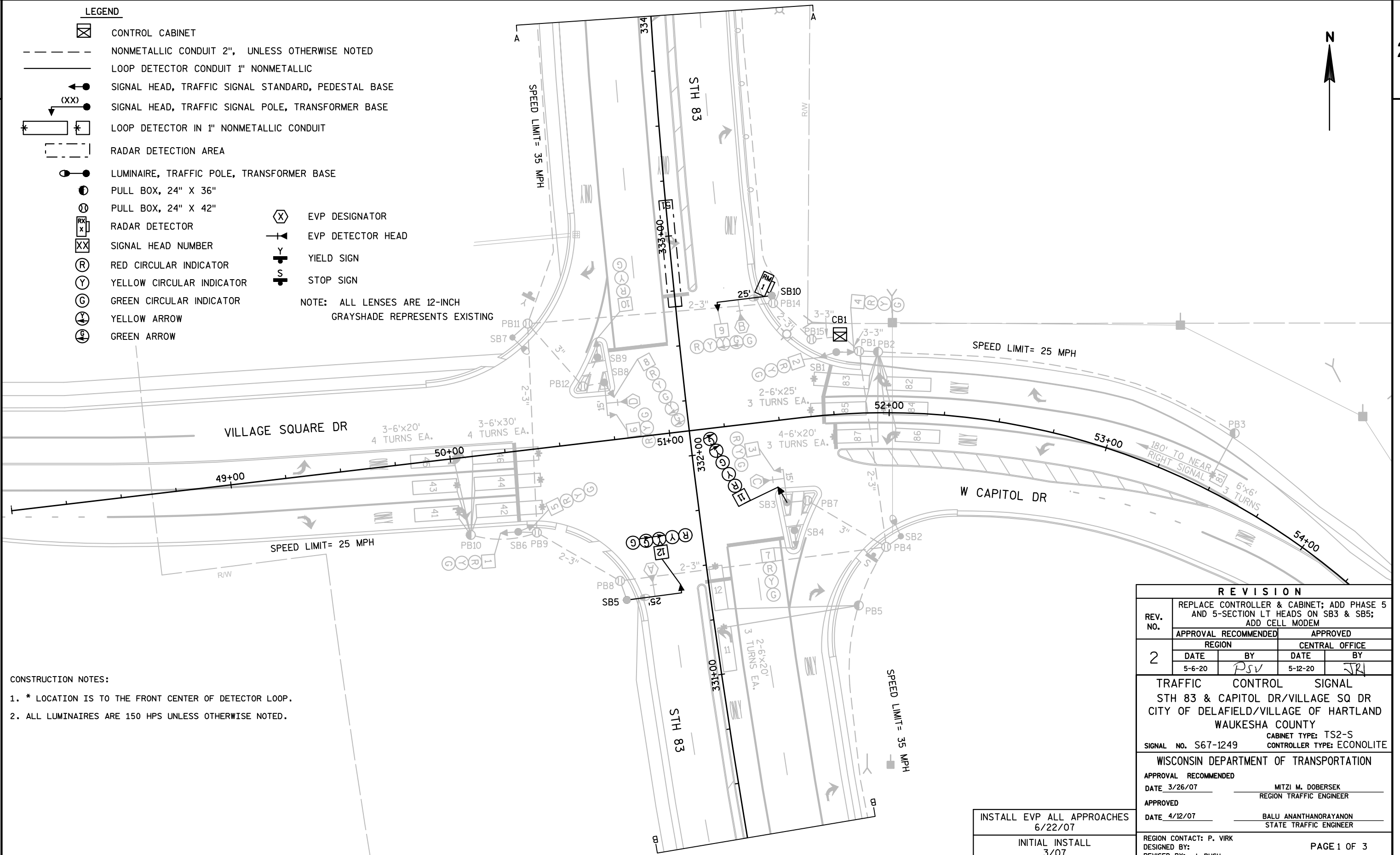
2% HV Coded in Synchro for all future intersection approaches.

#300 PHF & HV estimated from adjacent intersection #200.

## LEGEND

|  |                                                     |  |                   |
|--|-----------------------------------------------------|--|-------------------|
|  | CONTROL CABINET                                     |  | EVP DESIGNATOR    |
|  | NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED      |  | EVP DETECTOR HEAD |
|  | LOOP DETECTOR CONDUIT 1" NONMETALLIC                |  | YIELD SIGN        |
|  | SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE |  | STOP SIGN         |
|  | SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE  |  |                   |
|  | LOOP DETECTOR IN 1" NONMETALLIC CONDUIT             |  |                   |
|  | RADAR DETECTION AREA                                |  |                   |
|  | LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE           |  |                   |
|  | PULL BOX, 24" X 36"                                 |  |                   |
|  | PULL BOX, 24" X 42"                                 |  |                   |
|  | RADAR DETECTOR                                      |  |                   |
|  | SIGNAL HEAD NUMBER                                  |  |                   |
|  | RED CIRCULAR INDICATOR                              |  |                   |
|  | YELLOW CIRCULAR INDICATOR                           |  |                   |
|  | GREEN CIRCULAR INDICATOR                            |  |                   |
|  | YELLOW ARROW                                        |  |                   |
|  | GREEN ARROW                                         |  |                   |

NOTE: ALL LENSES ARE 12-INCH  
GRAYSHADE REPRESENTS EXISTING



## CONSTRUCTION NOTES:

- \* LOCATION IS TO THE FRONT CENTER OF DETECTOR LOOP.
- ALL LUMINAIRES ARE 150 HPS UNLESS OTHERWISE NOTED.

## REVISION

| REV. NO. | REPLACE CONTROLLER & CABINET; ADD PHASE 5 AND 5-SECTION LT HEADS ON SB3 & SB5; ADD CELL MODEM |     |                |    |
|----------|-----------------------------------------------------------------------------------------------|-----|----------------|----|
|          | APPROVAL RECOMMENDED                                                                          |     | APPROVED       |    |
| 2        | REGION                                                                                        |     | CENTRAL OFFICE |    |
|          | DATE                                                                                          | BY  | DATE           | BY |
|          | 5-6-20                                                                                        | PSV | 5-12-20        | JR |

TRAFFIC CONTROL SIGNAL  
STH 83 & CAPITOL DR/VILLAGE SQ DR  
CITY OF DELAFIELD/VILLAGE OF HARTLAND  
WAUKESHA COUNTY  
SIGNAL NO. S67-1249  
CABINET TYPE: TS2-S  
CONTROLLER TYPE: ECONOLITE

WISCONSIN DEPARTMENT OF TRANSPORTATION  
APPROVAL RECOMMENDED  
DATE 3/26/07  
APPROVED  
DATE 4/12/07  
REGION CONTACT: P. VIRK  
DESIGNED BY:  
REVISED BY: J. BUSH

MITZI M. DOBERSEK  
REGION TRAFFIC ENGINEER  
BALU ANANTHANORAYANON  
STATE TRAFFIC ENGINEER

INSTALL EVP ALL APPROACHES  
6/22/07

INITIAL INSTALL  
3/07

PAGE 1 OF 3

PROJECT NO: 3700-03-02

HWY: STH 83

COUNTY: WAUKESHA

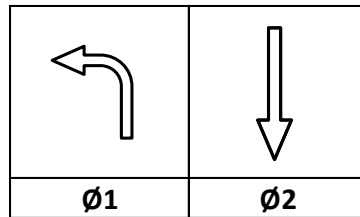
TRAFFIC SIGNAL PLAN

SHEET

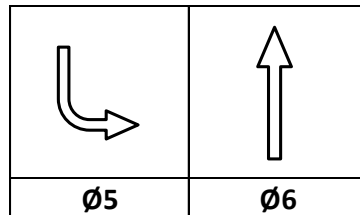
E

|     | HEAD<br>NUMBERS | F<br>L<br>A<br>S<br>H |
|-----|-----------------|-----------------------|
| Ø1  | 8,9             | -                     |
| Ø2  | 10,11,12        | R                     |
| Ø3  |                 |                       |
| Ø4  | 1,2,3           | R                     |
| Ø5  | 11,12           | -                     |
| Ø6  | 7,8,9           | R                     |
| Ø7  |                 |                       |
| Ø8  | 4,5,6           | R                     |
| Ø2P |                 |                       |
| Ø4P |                 |                       |
| Ø6P |                 |                       |
| Ø8P |                 |                       |
| OLE |                 |                       |
| OLF |                 |                       |
| OLG |                 |                       |
| OLH |                 |                       |

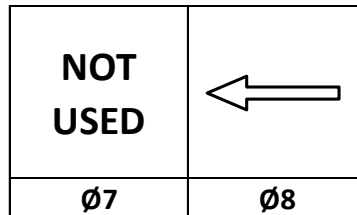
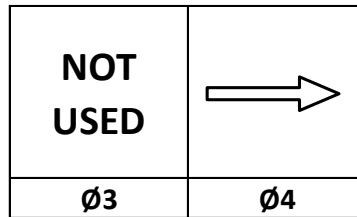
RING 1



RING 2



BARRIER



N

## CONTROLLER LOGIC

| PHASE<br>NUMBER | PHASE<br>LOCKING | DUAL<br>ENTRY<br>W / Ø | PHASE<br>RECALL | PHASE<br>ACTIVE |
|-----------------|------------------|------------------------|-----------------|-----------------|
| 1               |                  | 6                      |                 | X               |
| 2               | X                | 6                      | MIN             | X               |
| 3               |                  |                        |                 |                 |
| 4               |                  | 8                      |                 | X               |
| 5               |                  | 2                      |                 | X               |
| 6               | X                | 2                      | MIN             | X               |
| 7               |                  |                        |                 |                 |
| 8               |                  | 4                      |                 | X               |

## EMERGENCY VEHICLE PREEMPTION SEQUENCE

| EMERGENCY VEHICLE<br>PREEMPTOR | A   | B   | C   | D   |
|--------------------------------|-----|-----|-----|-----|
| MOVEMENT                       |     |     |     |     |
| PHASE                          | 2+6 | 6+2 | 4+8 | 8+4 |

AFTER PREEMPTION SEQUENCE 2+6 OR 6+2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+8 OR 8+4, CONTROLLER SHALL RETURN TO PHASES 4+8.

## DETECTOR LOGIC

|                        |    |    |    |    |    |    |    |    |
|------------------------|----|----|----|----|----|----|----|----|
| DETECTOR INPUT         | 3  | 1  | 7  | 5  | 11 | 9  | 15 | 13 |
| PLAN LOOP DETECTOR*(S) | 11 | 21 | 42 | 44 | 46 | 81 | 83 | 85 |
| CALLED PHASE           | 1  | 2  | 4  | 4  | 4  | 8  | 8  | 8  |
| CALL OPTION            | X  | X  | X  | X  | X  |    | X  | X  |
| DELAY TIME             |    |    | X  |    | X  |    | X  |    |
| EXTENTION OPTION       | X  | X  | X  | X  | X  | X  | X  | X  |
| EXTEND TIME            |    |    |    |    |    | X  |    |    |
| USE ADDED INITIAL      |    | X  |    |    |    |    |    |    |
| CROSS SWITCH PHASE     |    |    |    |    |    |    |    |    |

|                        |    |    |    |    |    |    |    |    |
|------------------------|----|----|----|----|----|----|----|----|
| DETECTOR INPUT         | 4  | 2  | 8  | 6  | 12 | 10 | 16 | 14 |
| PLAN LOOP DETECTOR*(S) | 12 | 41 | 43 | 45 | 61 | 82 | 84 | 86 |
| CALLED PHASE           | 1  | 4  | 4  | 4  | 6  | 8  | 8  | 8  |
| CALL OPTION            | X  | X  | X  | X  | X  | X  | X  | X  |
| DELAY TIME             | X  | X  |    |    |    | X  |    |    |
| EXTENTION OPTION       | X  | X  | X  | X  | X  | X  | X  | X  |
| EXTEND TIME            |    |    |    |    |    |    |    |    |
| USE ADDED INITIAL      |    |    |    |    | X  |    |    |    |
| CROSS SWITCH PHASE     |    |    |    |    |    |    |    |    |

|    |    |  |  |  |  |    |  |
|----|----|--|--|--|--|----|--|
| 19 | 17 |  |  |  |  | 33 |  |
| 87 |    |  |  |  |  | 51 |  |
| 8  |    |  |  |  |  | 5  |  |
| X  |    |  |  |  |  | X  |  |
| X  |    |  |  |  |  |    |  |
| X  |    |  |  |  |  | X  |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |

|                        |  |
|------------------------|--|
| DETECTOR INPUT         |  |
| PLAN LOOP DETECTOR*(S) |  |
| CALLED PHASE           |  |
| CALL OPTION            |  |
| DELAY TIME             |  |
| EXTENTION OPTION       |  |
| EXTEND TIME            |  |
| USE ADDED INITIAL      |  |
| CROSS SWITCH PHASE     |  |

|    |    |  |  |  |  |    |  |
|----|----|--|--|--|--|----|--|
| 20 | 18 |  |  |  |  | 34 |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |
|    |    |  |  |  |  |    |  |

|                        |  |
|------------------------|--|
| DETECTOR INPUT         |  |
| PLAN LOOP DETECTOR*(S) |  |
| CALLED PHASE           |  |
| CALL OPTION            |  |
| DELAY TIME             |  |
| EXTENTION OPTION       |  |
| EXTEND TIME            |  |
| USE ADDED INITIAL      |  |
| CROSS SWITCH PHASE     |  |

| TYPE OF INTERCONNECT/COMMUNICATION |   |
|------------------------------------|---|
| NONE                               |   |
| CLOSED LOOP                        |   |
| TWISTED PAIR                       |   |
| FIBER OPTIC*                       |   |
| FIBER OPTIC (ETHERNET)             |   |
| RADIO                              |   |
| CELL MODEM                         | X |

| TYPE OF COORDINATION                  |             |
|---------------------------------------|-------------|
| NONE                                  |             |
| TBC                                   | X           |
| TRAFFIC RESPONSIVE                    |             |
| ADAPTIVE                              |             |
| *LOCATION OF MASTER<br>CONTROLLER NO: | S-          |
| SIGNAL SYSTEM NO:                     | SS- 67-0091 |

| TYPE OF LIGHTING                 |   |
|----------------------------------|---|
| BY OTHER AGENCY                  |   |
| IN TRAFFIC CABINET               | X |
| IN SEPARATE DOT LIGHTING CABINET |   |

| TYPE OF PRE-EMPT    |   |
|---------------------|---|
| NONE                |   |
| RAILROAD            |   |
| EMERGENCY VEHICLE   | X |
| GTT                 |   |
| TOMAR               | X |
| HARDWIRE            |   |
| OTHER               |   |
| CONFIRMATION LIGHTS |   |
| LIFT BRIDGE         |   |
| QUEUE DETECTION     |   |

# Timing Cover Sheet for Signal: S1249 HWY: 83 and Capitol Dr

Date: 2/15/2022  
 Signal No: S1249  
 County: WAU  
 Controller: ECONOLITE  
 School: None

Changes Made By: P. Virk  
 Highway: 83  
 Local Hwy:  
 Location: Capitol Dr  
 Ped:

## Pre-emption

Preemption: Type: Phases:  
 None Recorded

## Coordination

System No: SS0091 Cell Modem IP Address: 172.22.248.36  
 Coordination Type: Time-Based Comments:  
 Comm Type: Cell Modem

|          | <u>Length</u> | <u>Split 1</u>                                                    | <u>Split 2</u>      | <u>Split 3</u> | <u>Split 4</u> |
|----------|---------------|-------------------------------------------------------------------|---------------------|----------------|----------------|
| Cycle 1= | 90 sec        | 6:30am - 9:00am M-F                                               | 3:00pm - 6:30pm M-F |                |                |
| Cycle 2= | 75 sec        | 9:00am - 3:00pm M-F<br>6:30pm - 9:00pm M-F<br>9:00am - 9:00pm S-S |                     |                |                |
| Cycle 3= |               |                                                                   |                     |                |                |
| Cycle 4= |               |                                                                   |                     |                |                |

Cabinet Type: TS2

Part of a Local System: No

Local Contact:  
 Phone Number:

☐ Battery Backup

## Turn Operations

Phases with

FYA TOD ☐

5 Section Head ☒

Lead/Lag ☐

Phase Omit ☐

Dynamic FYA ☐

Split Phase ☐

## Overlaps

Overlap A = Phases:

Overlap B = Phases:

Overlap C = Phases:

Overlap D = Phases:

## Detector Timing

Dilemma Zone: No

Bike Detection ☐

Detection Type(s): Loop, Radar

| Detector Number  | 11 | 12 | 41 | 42 | 45 | 46 | 81   | 82 | 83 | 86 | 87 |  |  |  |
|------------------|----|----|----|----|----|----|------|----|----|----|----|--|--|--|
| Stretch          |    |    |    |    |    |    | 3.75 |    |    |    |    |  |  |  |
| Right Turn Delay |    |    | 8  | 8  |    |    |      | 8  | 8  |    |    |  |  |  |
| Left Turn Delay  | 2  | 2  |    |    | 2  | 2  |      |    |    | 2  | 2  |  |  |  |

## Unique Features



Wisconsin DOT

MOV

S 67-1249\_TS1 - STH 83 &amp; Capitol Dr - Econolite Type - Cobalt

## Controller Timing Plan (MM) 2-1

Plan 1 - ""

| Phase         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Direction     | N-L | S-T | N   | E-T | S-L | N-T | N   | W-T | N   | N   | N   |
| Min Green     | 6   | 12  | 0   | 10  | 6   | 12  | 0   | 10  | 0   | 0   | 0   |
| Bk Min Green  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| CS Min Green  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Delay Green   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Walk          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Walk2         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Walk Max      | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped Clear     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped Clear 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped Clear Max | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped CO        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Vehicle Ext   | 1.5 | 4.9 | 3.0 | 1.5 | 1.5 | 4.9 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 |
| Vehicle Ext 2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Max1          | 30  | 45  | 0   | 30  | 30  | 45  | 0   | 30  | 0   | 0   | 0   |
| Max2          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Max3          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| DYM Max       | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Dym Step      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Yellow        | 3.5 | 3.6 | 0.0 | 3.3 | 3.5 | 3.6 | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 |
| Red Clear     | 1.0 | 2.0 | 0.0 | 3.0 | 1.0 | 2.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| Red Max       | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Red Revert    | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Act B4        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Sec/Act       | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Max Int       | 6   | 12  | 0   | 10  | 6   | 12  | 0   | 10  | 0   | 0   | 0   |
| Time B4       | 30  | 12  | 0   | 30  | 30  | 12  | 0   | 30  | 0   | 0   | 0   |
| Cars Wt       | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| STPTDuc       | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TTReduc       | 0   | 33  | 0   | 0   | 0   | 33  | 0   | 0   | 0   | 0   | 0   |
| Min Gap       | 1.5 | 2.0 | 0.0 | 1.5 | 1.5 | 2.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 |

### Split Pattern

### Coordinator Pattern # 2

### Split Preference Phases

| Ring              | 1   | 2   | 3  | 4  |
|-------------------|-----|-----|----|----|
| Ring Split Ext    | 0   | 0   | 0  | 0  |
| Ring Displacement | -   | 0   | 0  | 0  |
| Split Sum         | 90s | 90s | 0s | 0s |

## Split Pattern

### Coordinator Pattern # 3

### Split Preference Phases

| Ring              | 1   | 2   | 3  | 4  |
|-------------------|-----|-----|----|----|
| Ring Split Ext    | 0   | 0   | 0  | 0  |
| Ring Displacement | -   | 0   | 0  | 0  |
| Split Sum         | 75s | 75s | 0s | 0s |

## Split Pattern

[illegible]

Date: March 25, 2023

# BASE SATURATION FLOW RATE CALCULATIONS

|                        |
|------------------------|
| Intersection Name      |
| STH 83 & Capitol Drive |

|              |    |
|--------------|----|
| Exit Ramp:   | No |
| Speed Limit: | 35 |

|                                   |
|-----------------------------------|
| Urbanized Area/Cluster Population |
| 1,376,476                         |

|                          |  |      |  |      |
|--------------------------|--|------|--|------|
| Sat. Flow Rate (pc/h/ln) |  |      |  |      |
| 1900                     |  | 1891 |  | 1891 |

\*

\*

*\*Consider using 1900 pc/h/ln*

|            |     |   |     |   |
|------------|-----|---|-----|---|
| # of Lanes |     |   |     |   |
| Lane Type  |     |   |     |   |
| 1          |     | 2 |     | 1 |
| R          | T-R | T | L-T | L |

|              |
|--------------|
| Exit Ramp:   |
| No           |
| Speed Limit: |
| 25           |

|                     |      |   |
|---------------------|------|---|
| Sat. Flow (pc/h/ln) | 1797 | * |
|                     |      |   |
|                     | 1797 | * |
|                     |      |   |
|                     | 1900 |   |

*\*Consider using 1900 pc/h/ln*

|            |   |     |
|------------|---|-----|
| # of Lanes | 1 | L   |
| Lane Type  |   | L-T |
|            | 1 | T   |
|            |   | T-R |
|            | 1 | R   |

|                |     |   |     |   |
|----------------|-----|---|-----|---|
| Traffic Signal |     |   |     |   |
|                |     |   |     |   |
|                |     |   |     |   |
|                |     |   |     |   |
| L              | L-T | T | T-R | R |
| 1              |     | 2 |     | 1 |
| Lane Type      |     |   |     |   |
| # of Lanes     |     |   |     |   |

*\*Consider using 1900 pc/h/ln*

\*

\*

|                          |  |      |  |      |
|--------------------------|--|------|--|------|
| 1891                     |  | 1891 |  | 1900 |
| Sat. Flow Rate (pc/h/ln) |  |      |  |      |

|              |    |
|--------------|----|
| Speed Limit: | 35 |
| Exit Ramp:   | No |



|     |   |
|-----|---|
| R   | 1 |
| T-R |   |
| T   | 1 |
| L-T |   |
| L   | 1 |

|      |   |
|------|---|
| 1900 |   |
|      |   |
| 1797 | * |
|      |   |
| 1797 | * |

*\*Consider using 1900 pc/h/ln*

|              |
|--------------|
| Exit Ramp:   |
| No           |
| Speed Limit: |
| 25           |



Bureau of Traffic Operations  
Last Updated: 4/7/2022

# OPERATIONAL WARRANTS FOR LEFT-TURN LANES AT INTERSECTIONS ON TWO-LANE HIGHWAYS

Project: 3047 Hartland Kwik Trip & Three Leaf Partners Developments  
 Scenario: 2023 Traffic - Full Buildout  
 Analyst: TADI - TSC  
 Date: 3/30/2023

| Location                       | Operating Speed (mph) | Opposing Volume (veh/hr) | Advancing Volume (veh/hr) | Left-Turn Volume (veh/hr) | Calculated Left-Turn Percentage** | Advancing Volume Threshold* (veh/hr) | Is Advancing Volume Threshold Met? | By How Much?     |
|--------------------------------|-----------------------|--------------------------|---------------------------|---------------------------|-----------------------------------|--------------------------------------|------------------------------------|------------------|
| KT North Driveway - WB LT (AM) | 40                    | 190                      | 170                       | 5                         | 5.0%                              | 571                                  | NO                                 | short 401 veh/hr |
| KT North Driveway - WB LT (PM) | 40                    | 305                      | 155                       | 5                         | 5.0%                              | 571                                  | NO                                 | short 416 veh/hr |
| KT South Driveway - WB LT (AM) | 40                    | 100                      | 145                       | 15                        | 10.3%                             | 518                                  | NO                                 | short 373 veh/hr |
| KT South Driveway - WB LT (PM) | 40                    | 220                      | 130                       | 15                        | 11.5%                             | 502                                  | NO                                 | short 372 veh/hr |
| MF Driveway - EB LT (AM)       | 40                    | 45                       | 75                        | 30                        | 40.0%                             | 290                                  | NO                                 | short 215 veh/hr |
| MF Driveway - EB LT (PM)       | 40                    | 75                       | 195                       | 105                       | 40.0%                             | 290                                  | NO                                 | short 95 veh/hr  |
|                                |                       |                          |                           |                           |                                   |                                      |                                    |                  |
|                                |                       |                          |                           |                           |                                   |                                      |                                    |                  |

\* Advanced volume threshold based on exponential trendlines fit to the data in WisDOT FDM 11-25 Table 5.1. As a result, thresholds may differ slightly from data provided in Table 5.1.

\*\* Calculated left-turn percentage must be between 5 and 40 percent to provide threshold.

## Notes

Operating speed is posted speed limit plus 5-mph.

Opposing volume = Opposing Through and Right

Advancing Volume = Advancing Left, Through, and Right

Note: Capitol Drive speed limit is posted at 25 mph (operating speed of 30 mph) and some intersections have left-turn percentages below 5% or above 40%. These values (shown in red) were adjusted to yield calculation results in this study.

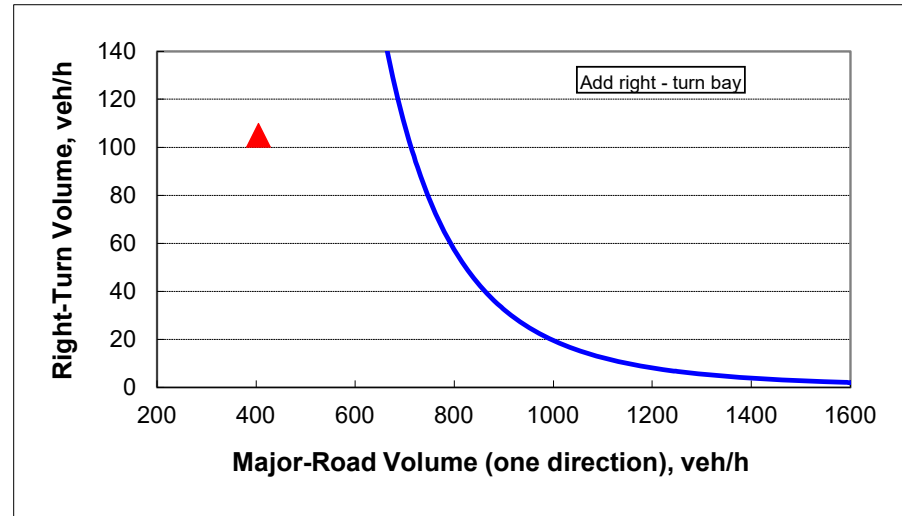
**Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

## INPUT

| Roadway geometry:                         | 2-lane roadway |
|-------------------------------------------|----------------|
| Variable                                  | Value          |
| Major-road speed, mph:                    | 30             |
| Major-road volume (one direction), veh/h: | 405            |
| Right-turn volume, veh/h:                 | 105            |

## OUTPUT

| Variable                                                                                       | Value |
|------------------------------------------------------------------------------------------------|-------|
| Limiting right-turn volume, veh/h:                                                             | 1523  |
| <b>Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:</b> |       |
| <b>Do NOT add right-turn bay.</b>                                                              |       |



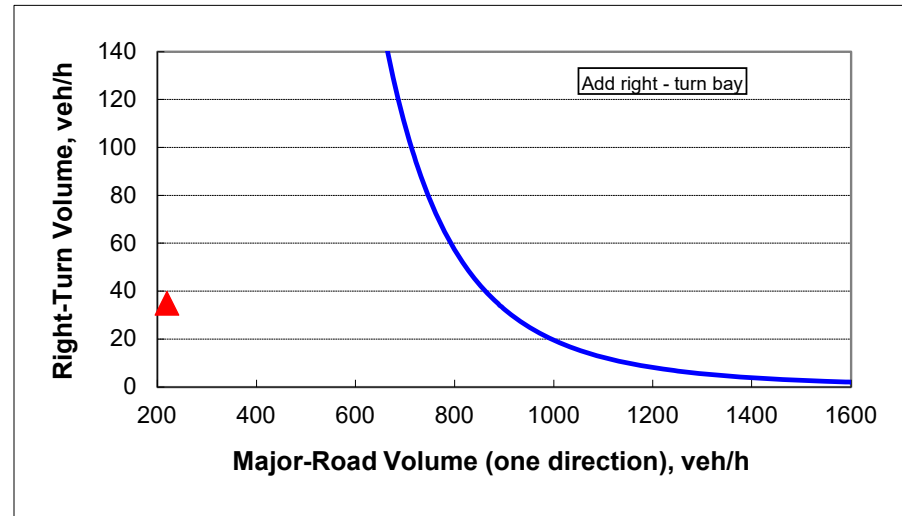
**Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

## INPUT

| Roadway geometry:                         | 2-lane roadway |
|-------------------------------------------|----------------|
| Variable                                  | Value          |
| Major-road speed, mph:                    | 30             |
| Major-road volume (one direction), veh/h: | 220            |
| Right-turn volume, veh/h:                 | 35             |

## OUTPUT

| Variable                                                                                       | Value |
|------------------------------------------------------------------------------------------------|-------|
| Limiting right-turn volume, veh/h:                                                             | 28825 |
| <b>Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:</b> |       |
| <b>Do NOT add right-turn bay.</b>                                                              |       |



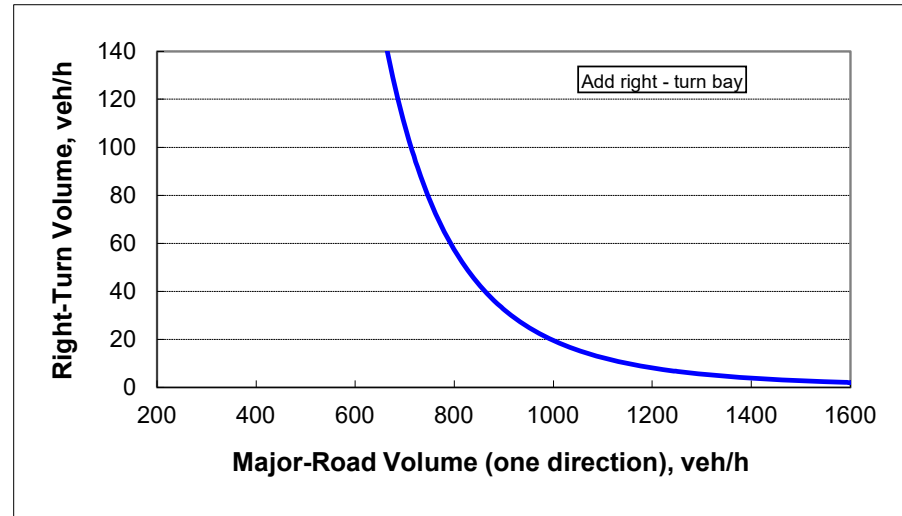
**Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

## INPUT

| Roadway geometry:                         | 2-lane roadway |
|-------------------------------------------|----------------|
| Variable                                  | Value          |
| Major-road speed, mph:                    | 30             |
| Major-road volume (one direction), veh/h: | 95             |
| Right-turn volume, veh/h:                 | 25             |

## OUTPUT

| Variable                                                                                       | Value   |
|------------------------------------------------------------------------------------------------|---------|
| Limiting right-turn volume, veh/h:                                                             | 1649182 |
| <b>Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:</b> |         |
| <b>Do NOT add right-turn bay.</b>                                                              |         |



# Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Capitol Drive & Vettleson Road/Apartments Driveway

County: Waukesha County

Village: Hartland, WI

Major Street: Capitol Drive

Minor Street: Vettleson Road

Critical Approach Speed: 25 mph

Critical Approach Speed: 25 mph

Lanes: 1 lane

Lanes: 1 lane

% Right Turns Included

In built-up area of isolated community of < 10,000 population? No

From North (SB) 0%

Total number of approaches at intersection? 4 or more

From East (WB) 100%

If it is a "T" intersection, inflate minor threshold to 150%? No

From South (NB) 100%

Manually set volume level?

From West (EB) 100%

Analysis based on **PROJECTED** volume data.

| Forecast Year      | Within 5 Years of Construction? | Time (HH:MM) |         |      |         |
|--------------------|---------------------------------|--------------|---------|------|---------|
|                    |                                 | From         | AM / PM | To   | AM / PM |
| Full Build Traffic |                                 | 6:00         | AM      | 7:00 | PM      |

| Warrant Evaluation Summary                           | Warrant Met: |
|------------------------------------------------------|--------------|
| <b>Warrant 1: Eight - Hour Vehicular Volume</b>      | <b>No</b>    |
| Condition A: Minimum Vehicular Volume                | No           |
| Condition B: Interruption of Continuous Traffic      | No           |
| Condition C: Combination: 80% of A and B             | No           |
| <b>Warrant 2: Four-Hour Volume</b>                   | <b>No</b>    |
| <b>Warrant 3: Peak Hour Volume</b>                   | <b>No</b>    |
| <b>Warrant 4: Pedestrian Volume</b>                  | <b>N/A</b>   |
| Criterion A: Four-Hour                               |              |
| Criterion B: Peak-Hour                               |              |
| <b>Warrant 5: School Crossing</b>                    | <b>N/A</b>   |
| <b>Warrant 6: Coordinated Signal System</b>          | <b>N/A</b>   |
| <b>Warrant 7: Crash Experience</b>                   | <b>N/A</b>   |
| <b>Warrant 8: Roadway Network</b>                    | <b>N/A</b>   |
| <b>Warrant 9: Intersection Near a Grade Crossing</b> | <b>N/A</b>   |

Warrant Analysis Conducted By:

Name: Tammi Czewski

Agency: TADI

Date: 3/24/2023

## Warrant 1: Eight - Hour Vehicular Volume

100%

Warrant Evaluated? Yes

| Condition A :<br>Min. Veh. Volume |      |     |
|-----------------------------------|------|-----|
| Volume Level                      | 100% | 80% |
| Major Rd. Req                     | 500  | 400 |
| Minor Rd. Req                     | 150  | 120 |
| Number of Hours                   | 0    | 0   |

Satisfied? No

| Condition B:<br>Interruption of Continuous Traffic |      |     |
|----------------------------------------------------|------|-----|
| Volume Level                                       | 100% | 80% |
| Major Rd. Req                                      | 750  | 600 |
| Minor Rd. Req                                      | 75   | 60  |
| Number of Hours                                    | 0    | 0   |

Satisfied? No

| Condition C:<br>Combination of A & B at 80% |  |  |
|---------------------------------------------|--|--|
|---------------------------------------------|--|--|

Satisfied? No

Warrant Satisfied? No

Manually Set To:

| 6:00 AM     |       | Enter Start Time (Military Time) (HH:MM) |                             |                             | Total |
|-------------|-------|------------------------------------------|-----------------------------|-----------------------------|-------|
| Time Period | From  | To                                       | Major Road: Both App. (VPH) | Minor Road: High App. (VPH) |       |
| 1           | 6:00  | 7:00                                     | 113                         | 25                          | 138   |
| 2           | 7:00  | 8:00                                     | 171                         | 40                          | 211   |
| 3           | 8:00  | 9:00                                     | 151                         | 31                          | 182   |
| 4           | 9:00  | 10:00                                    | 159                         | 38                          | 197   |
| 5           | 10:00 | 11:00                                    | 150                         | 40                          | 190   |
| 6           | 11:00 | 12:00                                    | 184                         | 49                          | 233   |
| 7           | 12:00 | 13:00                                    | 215                         | 35                          | 250   |
| 8           | 13:00 | 14:00                                    | 203                         | 36                          | 239   |
| 9           | 14:00 | 15:00                                    | 230                         | 35                          | 265   |
| 10          | 15:00 | 16:00                                    | 248                         | 40                          | 288   |
| 11          | 16:00 | 17:00                                    | 328                         | 44                          | 372   |
| 12          | 17:00 | 18:00                                    | 341                         | 46                          | 387   |
| 13          | 18:00 | 19:00                                    | 280                         | 37                          | 317   |
| 14          | 19:00 | 20:00                                    | 0                           | 0                           | 0     |
| 15          | 20:00 | 21:00                                    | 0                           | 0                           | 0     |
| 16          | 21:00 | 22:00                                    | 0                           | 0                           | 0     |

## Warrant 2: Four-Hour Volume

100%

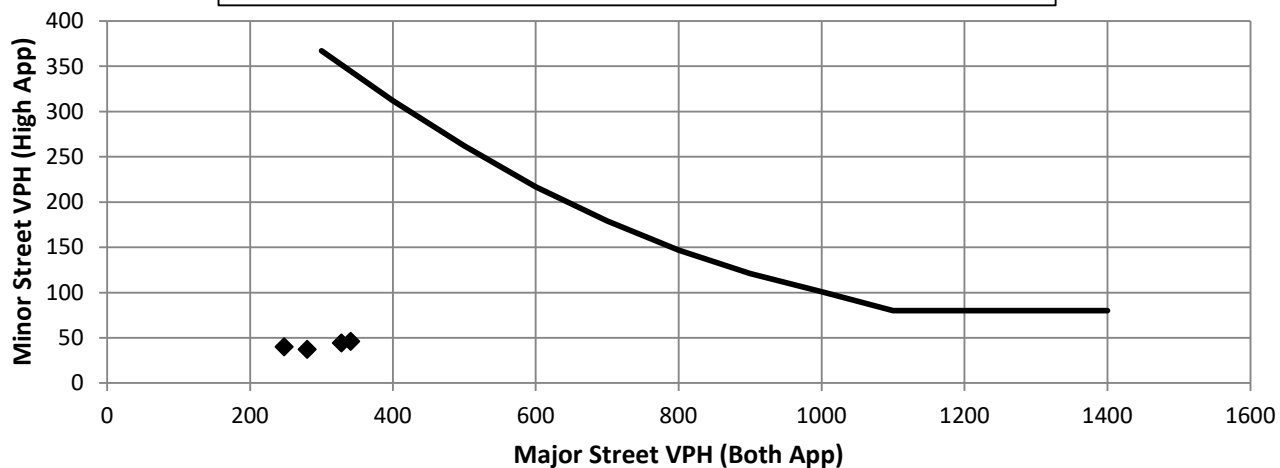
Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

|                 |       |       |       |       |
|-----------------|-------|-------|-------|-------|
| Hour Start      | 17:00 | 16:00 | 18:00 | 15:00 |
| Major Road Vol. | 341   | 328   | 280   | 248   |
| Minor Road Vol. | 46    | 44    | 37    | 40    |

Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume



## Warrant 3: Peak Hour Volume

100%

Warrant Evaluated? Yes

Warrant Satisfied? No

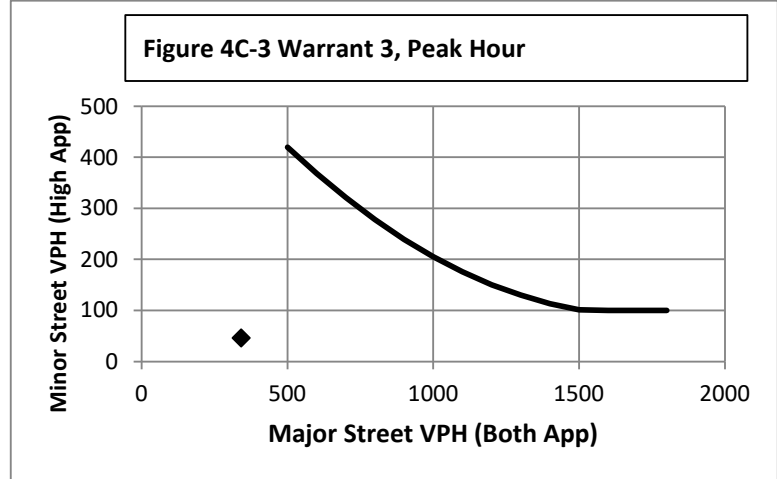
Manually Set To:

Condition justifying use of warrant:

| Criteria                      |     | Met? |
|-------------------------------|-----|------|
| Delay on Minor Approach       | 4   | No   |
| Volume on Minor Approach      | 100 |      |
| Total Entering Volume (veh/h) | 800 |      |

Manually Set Peak Hour?

| Peak Hour | Major Road Vol.<br>(Both App.) | Minor Road Vol.<br>(High App.) |
|-----------|--------------------------------|--------------------------------|
| 17:00     | 341                            | 46                             |



| Crite |
|-------|
| 1     |
| 2     |
| 3     |

| Crite |
|-------|
| 1     |
| 2     |
| 3     |

## Warrant 4: Pedestrian Volume

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

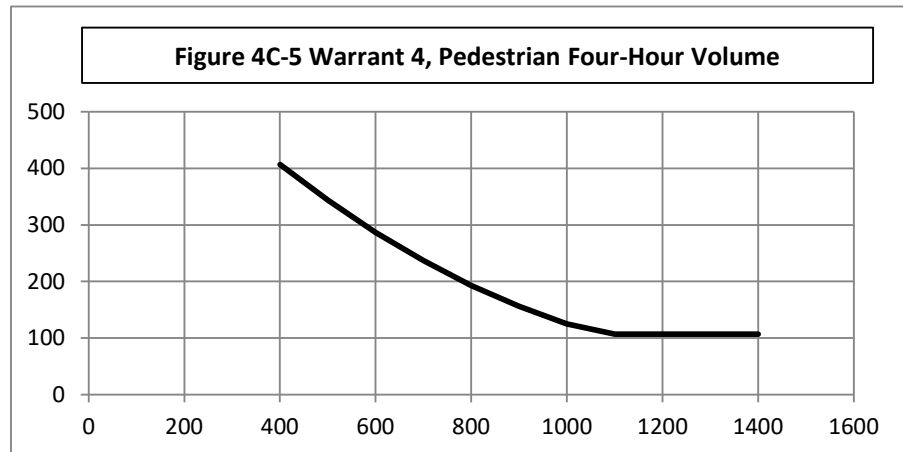
Criterion A: Four Hour

| Hour<br>(Start) | Pedestrian<br>Volume | Major Road<br>Vol. |
|-----------------|----------------------|--------------------|
|                 |                      | 0                  |
|                 |                      | 0                  |
|                 |                      | 0                  |
|                 |                      | 0                  |

Manually Set Major Rd Vol?

Avg. walk speed less than 3.5 ft/s?

Criterion A Satisfied?

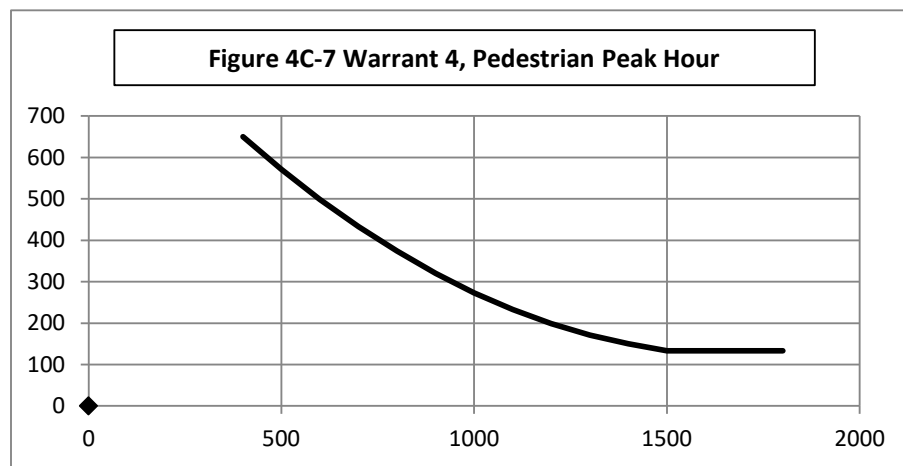


| Crite |
|-------|
| 1     |
| 2     |
| 3     |

Criterion B: Peak Hour

| Peak Hour | Pedestrian<br>Vol. | Major Road<br>Vol. |
|-----------|--------------------|--------------------|
| 0:00      | 0                  | 0                  |

Criterion B Satisfied?



| Crite |
|-------|
| 1     |
| 2     |
| Char  |
| 1     |
| 2     |
| 3     |

## Warrant 5: School Crossing

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

Criteria

Fulfilled?

|                                                                                                                                                                                                                          |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| There are a MINIMUM of 20 school children during the highest crossing hour.                                                                                                                                              |  |
| There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.                                          |  |
| The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic. |  |

## Warrant 6: Coordinated Signal System

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

Criteria

Fulfilled?

|                                                                                                                                                                                         |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Signal spacing > 1000 ft                                                                                                                                                                |  |
| On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning. |  |
| On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.      |  |

## Warrant 7: Crash Experience

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

Criteria

Met?

Fulfilled?

|                                                                                                                      |                            |     |
|----------------------------------------------------------------------------------------------------------------------|----------------------------|-----|
| Adequate trial of other remedial measures has failed to reduce crash frequency.                                      |                            |     |
| Measures Tried:                                                                                                      |                            |     |
| Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period. | # of crashes per 12 months |     |
| Warrant 1, Condition A (80%)                                                                                         | No                         | Yes |
| Warrant 1, Condition B (80%)                                                                                         | No                         |     |
| Warrant 4, Criterion A (80%)                                                                                         | No                         |     |
| Warrant 4, Criterion B (80%)                                                                                         | Yes                        |     |

## Warrant 8: Roadway Network

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

Criteria

Met?

Fulfilled?

|                                                                                                             |  |     |    |    |
|-------------------------------------------------------------------------------------------------------------|--|-----|----|----|
| Total entering volume of at least 1,000 veh/h during typical weekday peak hour                              |  | 387 | No | No |
| Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.                                |  |     | No |    |
| Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) |  |     |    |    |
| Hour                                                                                                        |  |     |    |    |
| Volume                                                                                                      |  |     |    |    |

Characteristics of Major Routes - Select yes if all intersecting routes have characteristic

Fulfilled?

|                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------|--|
| Part of the road or highway system that serves as the principal roadway network for through traffic flow |  |
| Rural or suburban highway outside of, entering, or traversing a city                                     |  |
| Appears as a major route on an official plan                                                             |  |

## Warrant 9: Intersection Near a Grade Crossing

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

| Adjustment Factors   |                                      |                                        | Manually Set Peak Hour? |           |                 |                 |                     |
|----------------------|--------------------------------------|----------------------------------------|-------------------------|-----------|-----------------|-----------------|---------------------|
| Rail Traffic per Day | % High Occupancy Buses on Minor Road | % Tractor-Trailer Trucks on Minor Road | D                       | Peak Hour | Major Road Vol. | Minor Road Vol. | Adjusted Minor Vol. |
| 1                    | 0                                    | 0% to 2.5%                             | 660                     | 17:00     | 341             | 46              | 15.41               |

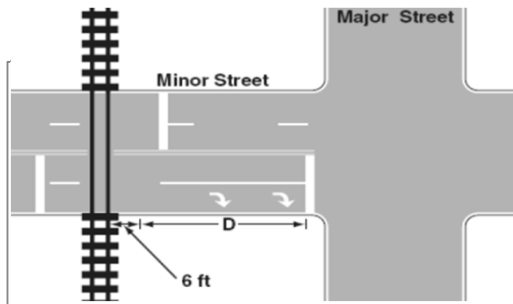
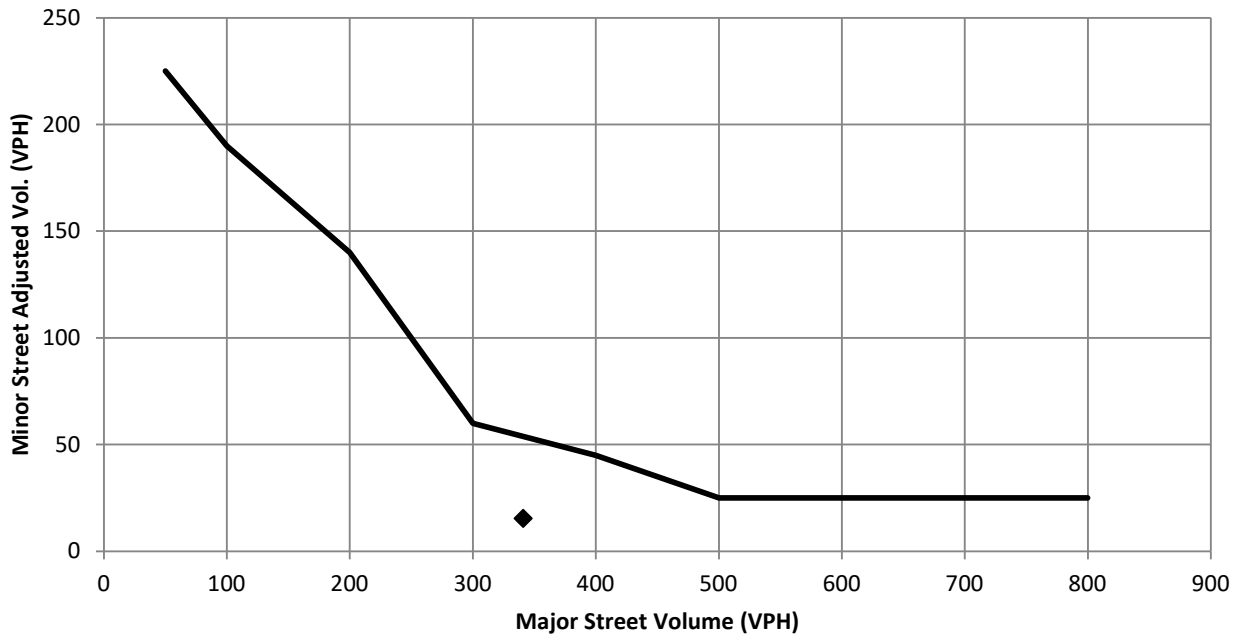


Figure 4C-9 Warrant9, Intersection Near a grade Crossing (One Approach Lane at the Track Crossing)



Conclusions/Comments:

Updated: 12/6/2017

| Hourly Volume Data                    |       |                      |      |      |      |       |                     |      |      |      |       |                      |      |      |      |       |                     |      |      |      |       |                            |
|---------------------------------------|-------|----------------------|------|------|------|-------|---------------------|------|------|------|-------|----------------------|------|------|------|-------|---------------------|------|------|------|-------|----------------------------|
| One Hour<br>Time Period<br>Start Time |       | ↓<br>From North (SB) |      |      |      |       | ←<br>From East (WB) |      |      |      |       | ↑<br>From South (NB) |      |      |      |       | →<br>From West (EB) |      |      |      |       | Total<br>Vehicle<br>Volume |
|                                       |       | Right                | Thru | Left | U-Tn | Total | Right               | Thru | Left | U-Tn | Total | Right                | Thru | Left | U-Tn | Total | Right               | Thru | Left | U-Tn | Total |                            |
| AM                                    | 6:00  | 77                   | 5    | 20   | 0    | 102   | 4                   | 34   | 4    | 0    | 42    | 11                   | 1    | 13   | 0    | 25    | 10                  | 46   | 15   | 0    | 71    | 240                        |
|                                       | 7:00  | 120                  | 8    | 32   | 0    | 160   | 6                   | 38   | 14   | 0    | 58    | 14                   | 2    | 19   | 0    | 35    | 17                  | 73   | 23   | 0    | 113   | 366                        |
|                                       | 8:00  | 94                   | 6    | 25   | 0    | 125   | 9                   | 22   | 9    | 0    | 40    | 11                   | 2    | 15   | 1    | 29    | 15                  | 61   | 35   | 0    | 111   | 305                        |
|                                       | 9:00  | 54                   | 4    | 14   | 0    | 72    | 8                   | 31   | 19   | 0    | 58    | 18                   | 2    | 18   | 0    | 38    | 16                  | 53   | 32   | 0    | 101   | 269                        |
| MD                                    | 10:00 | 53                   | 4    | 14   | 0    | 71    | 7                   | 38   | 17   | 0    | 62    | 23                   | 2    | 15   | 0    | 40    | 10                  | 51   | 27   | 0    | 88    | 261                        |
|                                       | 11:00 | 53                   | 4    | 14   | 0    | 71    | 11                  | 37   | 14   | 0    | 62    | 27                   | 3    | 19   | 0    | 49    | 19                  | 60   | 43   | 0    | 122   | 304                        |
|                                       | 12:00 | 46                   | 3    | 12   | 0    | 61    | 13                  | 47   | 27   | 0    | 87    | 15                   | 3    | 17   | 0    | 35    | 15                  | 63   | 50   | 0    | 128   | 311                        |
|                                       | 13:00 | 50                   | 3    | 13   | 0    | 66    | 12                  | 37   | 27   | 0    | 76    | 23                   | 3    | 10   | 0    | 36    | 23                  | 60   | 44   | 0    | 127   | 305                        |
| PM                                    | 14:00 | 54                   | 4    | 14   | 0    | 72    | 17                  | 35   | 24   | 0    | 76    | 18                   | 4    | 13   | 0    | 35    | 27                  | 65   | 62   | 0    | 154   | 337                        |
|                                       | 15:00 | 59                   | 4    | 16   | 0    | 79    | 21                  | 49   | 14   | 0    | 84    | 22                   | 5    | 13   | 0    | 40    | 11                  | 76   | 77   | 0    | 164   | 367                        |
|                                       | 16:00 | 62                   | 4    | 17   | 0    | 83    | 30                  | 52   | 22   | 0    | 104   | 16                   | 8    | 20   | 0    | 44    | 19                  | 92   | 113  | 0    | 224   | 455                        |
|                                       | 17:00 | 84                   | 6    | 22   | 0    | 112   | 34                  | 51   | 15   | 0    | 100   | 22                   | 8    | 16   | 0    | 46    | 24                  | 90   | 127  | 0    | 241   | 499                        |
|                                       | 18:00 | 74                   | 5    | 20   | 0    | 99    | 29                  | 30   | 22   | 0    | 81    | 19                   | 7    | 11   | 0    | 37    | 27                  | 64   | 108  | 0    | 199   | 416                        |
|                                       | 19:00 | 0                    | 0    | 0    | 0    | 0     | 0                   | 0    | 0    | 0    | 0     | 0                    | 0    | 0    | 0    | 0     | 0                   | 0    | 0    | 0    | 0     | 0                          |
|                                       | 20:00 |                      |      |      |      |       |                     |      |      |      |       |                      |      |      |      |       |                     |      |      |      |       | 0                          |
|                                       | 21:00 |                      |      |      |      |       |                     |      |      |      |       |                      |      |      |      |       |                     |      |      |      |       | 0                          |
| Totals                                |       | 880                  | 60   | 233  | 0    | 1173  | 201                 | 501  | 228  | 0    | 930   | 239                  | 50   | 199  | 1    | 489   | 233                 | 854  | 756  | 0    | 1843  | 4435                       |

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road: 

E/W

Major Road Left Turn as Minor Approach?

% Right Turns Included (Default 0%)

|                 |      |
|-----------------|------|
| From North (SB) | 0%   |
| From East (WB)  | 100% |
| From South (NB) | 100% |
| From West (EB)  | 100% |

| Major Road Volume Totals:<br>East/West |      |      |      |       |
|----------------------------------------|------|------|------|-------|
| Right                                  | Thru | Left | T+LT | Total |
| 14                                     | 80   | 19   | 99   | 113   |
| 23                                     | 111  | 37   | 148  | 171   |
| 24                                     | 83   | 44   | 127  | 151   |
| 24                                     | 84   | 51   | 135  | 159   |
| 17                                     | 89   | 44   | 133  | 150   |
| 30                                     | 97   | 57   | 154  | 184   |
| 28                                     | 110  | 77   | 187  | 215   |
| 35                                     | 97   | 71   | 168  | 203   |
| 44                                     | 100  | 86   | 186  | 230   |
| 32                                     | 125  | 91   | 216  | 248   |
| 49                                     | 144  | 135  | 279  | 328   |
| 58                                     | 141  | 142  | 283  | 341   |
| 56                                     | 94   | 130  | 224  | 280   |
| 0                                      | 0    | 0    | 0    | 0     |
| 0                                      | 0    | 0    | 0    | 0     |
| 0                                      | 0    | 0    | 0    | 0     |
| 434                                    | 1355 | 984  | 2339 | 2773  |

| Minor Road Highest Volume:<br>North/South |      |      |      |       |
|-------------------------------------------|------|------|------|-------|
| Right                                     | Thru | Left | T+LT | Total |
| 11                                        | 1    | 13   | 14   | 25    |
| 0                                         | 8    | 32   | 40   | 40    |
| 0                                         | 6    | 25   | 31   | 31    |
| 18                                        | 2    | 18   | 20   | 38    |
| 23                                        | 2    | 15   | 17   | 40    |
| 27                                        | 3    | 19   | 22   | 49    |
| 15                                        | 3    | 17   | 20   | 35    |
| 23                                        | 3    | 10   | 13   | 36    |
| 18                                        | 4    | 13   | 17   | 35    |
| 22                                        | 5    | 13   | 18   | 40    |
| 16                                        | 8    | 20   | 28   | 44    |
| 22                                        | 8    | 16   | 24   | 46    |
| 19                                        | 7    | 11   | 18   | 37    |
| 0                                         | 0    | 0    | 0    | 0     |
| 0                                         | 0    | 0    | 0    | 0     |
| 0                                         | 0    | 0    | 0    | 0     |
| 214                                       | 60   | 222  | 282  | 496   |

By: TSC  
Date: 3/24/2023

[illegible][illegible]

| Kwik Trip - New Trips |                                 |      |      |        |                               |      |      |        |                                 |      |      |        |                               |      |      |        |                     |
|-----------------------|---------------------------------|------|------|--------|-------------------------------|------|------|--------|---------------------------------|------|------|--------|-------------------------------|------|------|--------|---------------------|
| Start Time            | <div>↓</div><br>Apartments Dwy. |      |      |        | <div>←</div><br>Capitol Drive |      |      |        | <div>↑</div><br>Vettelson Drive |      |      |        | <div>→</div><br>Capitol Drive |      |      |        | Intersection Totals |
|                       | Right                           | Thru | Left | U-Turn | Right                         | Thru | Left | U-Turn | Right                           | Thru | Left | U-Turn | Right                         | Thru | Left | U-Turn |                     |
| 6-7am                 | 0                               | 0    | 0    | 0      | 0                             | 7    | 0    | 0      | 0                               | 0    | 2    | 0      | 2                             | 7    | 0    | 0      | 18                  |
| 7-8am                 | 0                               | 0    | 0    | 0      | 0                             | 9    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 9    | 0    | 0      | 24                  |
| 8-9am                 | 0                               | 0    | 0    | 0      | 0                             | 10   | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 10   | 0    | 0      | 26                  |
| 9-10am                | 0                               | 0    | 0    | 0      | 0                             | 9    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 9    | 0    | 0      | 24                  |
| 10-11am               | 0                               | 0    | 0    | 0      | 0                             | 8    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 8    | 0    | 0      | 22                  |
| 11am-12pm             | 0                               | 0    | 0    | 0      | 0                             | 9    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 9    | 0    | 0      | 24                  |
| 12-1pm                | 0                               | 0    | 0    | 0      | 0                             | 10   | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 10   | 0    | 0      | 26                  |
| 1-2pm                 | 0                               | 0    | 0    | 0      | 0                             | 10   | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 9    | 0    | 0      | 25                  |
| 2-3pm                 | 0                               | 0    | 0    | 0      | 0                             | 9    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 10   | 0    | 0      | 25                  |
| 3-4pm                 | 0                               | 0    | 0    | 0      | 0                             | 11   | 0    | 0      | 0                               | 0    | 4    | 0      | 4                             | 11   | 0    | 0      | 30                  |
| 4-5pm                 | 0                               | 0    | 0    | 0      | 0                             | 10   | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 10   | 0    | 0      | 26                  |
| 5-6pm                 | 0                               | 0    | 0    | 0      | 0                             | 11   | 0    | 0      | 0                               | 0    | 4    | 0      | 4                             | 11   | 0    | 0      | 30                  |
| 6-7pm                 | 0                               | 0    | 0    | 0      | 0                             | 8    | 0    | 0      | 0                               | 0    | 3    | 0      | 3                             | 9    | 0    | 0      | 23                  |
| 7-8pm                 | 0                               | 0    | 0    | 0      | 0                             | 0    | 0    | 0      | 0                               | 0    | 0    | 0      | 0                             | 0    | 0    | 0      | 0                   |

| IN   | OUT  |
|------|------|
| 1045 | 1045 |
| 0%   | 0%   |
| 1045 | 1045 |

← % Reduction, Sensitivity Test

| % AADT IN | % AADT OUT | Notes                 |
|-----------|------------|-----------------------|
| 4.7%      | 4.5%       | ITE #945 Distribution |
| 6.0%      | 5.9%       |                       |
| 6.5%      | 6.4%       |                       |
| 5.6%      | 5.7%       |                       |
| 5.5%      | 5.5%       |                       |
| 6.1%      | 6.0%       |                       |
| 6.6%      | 6.6%       |                       |
| 6.2%      | 5.9%       |                       |
| 6.3%      | 6.2%       |                       |
| 6.8%      | 6.8%       |                       |
| 6.3%      | 6.5%       |                       |
| 6.7%      | 6.9%       |                       |
| 5.3%      | 5.4%       |                       |

| IN  | OUT |
|-----|-----|
| 15% | 5%  |
| 5%  | 15% |

---

## ASWC Warrant Criteria

MUTCD **No**

WisDOT **No**

### MUTCD

Met? Criteria

- No** A. Is a signal justified? **No**
- No** B. # of crashes in a 12 month period that can be corrected by multi-way stop control: **0**
- No** C. Minimum Volumes
1. Major road approach volume (total of both) at least 300 vph for min 8 hours?
  2. Combined ped, bike, and veh volume on minor approach (total of both) at least 200 units per hour for the same 8 hours as criteria C-1?
  3. If the 85th percentile speed on the major road exceeds 40 mph, may use 70% of the values in C-1 and C-2

Major Street 85th percentile mph: **30**

| Time Period | From  | To    | Major Road: Both App. | Minor Road: Both App. (VPH) | C-1 | C-2 | Both Met? | D (80%) |     | Both Met? |
|-------------|-------|-------|-----------------------|-----------------------------|-----|-----|-----------|---------|-----|-----------|
| 1           | 6:00  | 7:00  | 113                   | 127                         | No  | No  | No        | No      | No  | No        |
| 2           | 7:00  | 8:00  | 171                   | 195                         | No  | No  | No        | No      | Yes | No        |
| 3           | 8:00  | 9:00  | 151                   | 154                         | No  | No  | No        | No      | No  | No        |
| 4           | 9:00  | 10:00 | 159                   | 110                         | No  | No  | No        | No      | No  | No        |
| 5           | 10:00 | 11:00 | 150                   | 111                         | No  | No  | No        | No      | No  | No        |
| 6           | 11:00 | 12:00 | 184                   | 120                         | No  | No  | No        | No      | No  | No        |
| 7           | 12:00 | 13:00 | 215                   | 96                          | No  | No  | No        | No      | No  | No        |
| 8           | 13:00 | 14:00 | 203                   | 102                         | No  | No  | No        | No      | No  | No        |
| 9           | 14:00 | 15:00 | 230                   | 107                         | No  | No  | No        | No      | No  | No        |
| 10          | 15:00 | 16:00 | 248                   | 119                         | No  | No  | No        | Yes     | No  | No        |
| 11          | 16:00 | 17:00 | 328                   | 127                         | Yes | No  | No        | Yes     | No  | No        |
| 12          | 17:00 | 18:00 | 341                   | 158                         | Yes | No  | No        | Yes     | No  | No        |
| 13          | 18:00 | 19:00 | 280                   | 136                         | No  | No  | No        | Yes     | No  | No        |
| 14          | 19:00 | 20:00 |                       |                             |     |     |           |         |     |           |
| 15          | 20:00 | 21:00 |                       |                             |     |     |           |         |     |           |
| 16          | 21:00 | 22:00 |                       |                             |     |     |           |         |     |           |

- No** D. Use when previous criteria have not been met:  
If 80% minimum values of Criteria B, C-1, and C-2 (C-3 excluded) are satisfied, warrant is met.

### WisDOT

Met? Criteria

#### 1 Functional Highway Classification

| Approach | Classification |
|----------|----------------|
| 1: (SB)  |                |
| 2: (WB)  |                |
| 3: (NB)  |                |
| 4: (EB)  |                |

#### 2 Average Daily Traffic

| Approach | AADT |
|----------|------|
| Minor 1  |      |
| Minor 2  |      |
| Major 1  |      |
| Major 2  |      |

- No** 3 **Crash History**  
# of crashes in a 12 month period that can be corrected by multi-way stop control: **0**  
Expected to significantly reduce the overall severity of future crashes?

#### 4 Alternatives

Refer to TGM 13-26-5 Section D.

#### 5 Mobility Impact

Will the high-volume "through" street experience significant delays for the benefit of reducing delays for a low-volume side street?

#### 6 Right Turn Inclusion

Refer to WisDOT TSDM 2-3-2

# ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 3/24/2023  
 Intersection: Capitol Drive & Palmer Drive/Kwik Trip North Driveway  
 Community: Hartland, WI

Mainline Name: Capitol Drive  
 Sidestreet Name: Palmer Drive / Kwik Trip North Driveway

|                                   |        |                                                                                                     |  |
|-----------------------------------|--------|-----------------------------------------------------------------------------------------------------|--|
| Left-In Allowed?                  | Yes    |                                                                                                     |  |
| Left-Out Allowed?                 | Yes    |                                                                                                     |  |
| Right-In Allowed?                 | Yes    |                                                                                                     |  |
| Right-Out Allowed?                | Yes    |                                                                                                     |  |
| Through-Out Allowed?              | Yes    |                                                                                                     |  |
| Design Speed from Left:           | 30     | mph                                                                                                 |  |
| Design Speed from Right:          | 30     | mph                                                                                                 |  |
| Median Width:                     | 12     | feet                                                                                                |  |
| Minor Street Approach Grade:      | 0.0%   | If a minor street vehicle approaches the major street at greater than 3%, enter grade.              |  |
| Number of Near Side Right & Bike: | 1.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| Number of Near Side Thru:         | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Thru:          | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Right & Bike:  | 0.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| AASHTO or WisDOT:                 | AASHTO |                                                                                                     |  |

|                           |      |                                                    |
|---------------------------|------|----------------------------------------------------|
| P-vehicle Design Length:  | 19.0 | feet (P = 19.0. Overwrite if other design veh)     |
| SU-vehicle Design Length: | 39.5 | feet (SU-40 = 39.5. Overwrite if other design veh) |
| WB-vehicle Design Length: | 73.5 | feet (WB-67 = 73.5. Overwrite if other design veh) |

|                  |   |    |    |                |
|------------------|---|----|----|----------------|
|                  | P | SU | WB |                |
| Design Vehicles: | x | x  | x  | (place an "X") |

## ISD CASE B1: Left Turn from Minor Street or Median (driver looking right)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 7.50  | 9.50  | 11.50 | 10.00                    | 12.00 | 13.00 |
| Additional Time Gap 1, sec: | 1.00  | 1.40  | 1.40  | 1.00                     | 1.40  | 1.40  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 8.50  | 10.90 | 12.90 | 11.00                    | 13.40 | 14.40 |
| Case B1 ISD, feet:          | 374.0 | 479.6 | 567.6 | 484.0                    | 589.6 | 633.6 |
| Rounded Case B1 ISD, feet:  | 375   | 480   | 570   | 485                      | 590   | 635   |

## ISD CASE B2: Right Turn from Minor Street (driver looking left)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 8.00                     | 10.00 | 12.00 |
| Additional Time Gap 1, sec: | 0.50  | 0.70  | 0.70  | 0.50                     | 0.70  | 0.70  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 7.00  | 9.20  | 11.20 | 8.50                     | 10.70 | 12.70 |
| Case B2 ISD, feet:          | 308.0 | 404.8 | 492.8 | 374.0                    | 470.8 | 558.8 |
| Rounded Case B2 ISD, feet:  | 310   | 405   | 495   | 375                      | 475   | 560   |

## ISD CASE B3a: Crossing from Minor Street Traffic from Left (driver looking left)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Case B3a ISD, feet:         | 286.0 | 374.0 | 462.0 | 308.0                    | 440.0 | 572.0 |
| Rounded Case B3a ISD, feet: | 290   | 375   | 465   | 310                      | 445   | 575   |

## ISD CASE B3b: Crossing from Minor Street or Median (driver looking right)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Additional Time Gap 1, sec: | 1.00  | 1.40  | 1.40  | 1.00                     | 1.40  | 1.40  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 7.50  | 9.90  | 11.90 | 8.00                     | 11.40 | 14.40 |
| Case B3b ISD, feet:         | 330.0 | 435.6 | 523.6 | 352.0                    | 501.6 | 633.6 |
| Rounded Case B3b ISD, feet: | 335   | 440   | 525   | 355                      | 505   | 635   |

## ISD CASE F: Left from Major to Minor (driver looking to left of access towards oncoming traffic)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 5.50  | 6.50  | 7.50  | 8.00                     | 8.00  | 8.00  |
| Additional Time Gap 1, sec: | 0.50  | 0.70  | 0.70  | 0.50                     | 0.70  | 0.70  |
| Additional Time Gap 2, sec: | N/A   | N/A   | N/A   | N/A                      | N/A   | N/A   |
| Total Time Gap, sec:        | 6.00  | 7.20  | 8.20  | 8.50                     | 8.70  | 8.70  |
| Case F ISD, feet:           | 264.0 | 316.8 | 360.8 | 374.0                    | 382.8 | 382.8 |
| Rounded Case F ISD, feet:   | 265   | 320   | 365   | 375                      | 385   | 385   |

## ISD CONTROLLING DISTANCES:

| AASHTO MINIMUM ISD       |      |      |      | WISDOT UPPER MINIMUM ISD |      |      |
|--------------------------|------|------|------|--------------------------|------|------|
|                          | P    | SU   | WB   |                          |      |      |
| To Left of Access:       | 310' | 405' | 495' | 375'                     | 475' | 575' |
| To Right of Access:      | 375' | 480' | 570' | 485'                     | 590' | 635' |
| Left-Turn from Mainline: | 265' | 320' | 365' | 375'                     | 385' | 385' |



# ISD CALCULATIONS (TWSC)

Performed by: **TADI - TSC** Date: **3/24/2023**  
 Intersection: **Capitol Drive & Kwik Trip South Driveway**  
 Community: **Hartland, WI**

Mainline Name: **Capitol Drive**  
 Sidestreet Name: **Kwik Trip South Driveway**

|                                   |        |                                                                                                     |  |
|-----------------------------------|--------|-----------------------------------------------------------------------------------------------------|--|
| Left-In Allowed?                  | Yes    |                                                                                                     |  |
| Left-Out Allowed?                 | Yes    |                                                                                                     |  |
| Right-In Allowed?                 | Yes    |                                                                                                     |  |
| Right-Out Allowed?                | Yes    |                                                                                                     |  |
| Through-Out Allowed?              | No     |                                                                                                     |  |
| Design Speed from Left:           | 30     | mph                                                                                                 |  |
| Design Speed from Right:          | 30     | mph                                                                                                 |  |
| Median Width:                     | 0      | feet                                                                                                |  |
| Minor Street Approach Grade:      | 0.0%   | If a minor street vehicle approaches the major street at greater than 3%, enter grade.              |  |
| Number of Near Side Right & Bike: | 0.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| Number of Near Side Thru:         | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Thru:          | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Right & Bike:  | 0.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| AASHTO or WisDOT:                 | AASHTO |                                                                                                     |  |

|                           |      |                                                    |
|---------------------------|------|----------------------------------------------------|
| P-vehicle Design Length:  | 19.0 | feet (P = 19.0. Overwrite if other design veh)     |
| SU-vehicle Design Length: | 39.5 | feet (SU-40 = 39.5. Overwrite if other design veh) |
| WB-vehicle Design Length: | 73.5 | feet (WB-67 = 73.5. Overwrite if other design veh) |

|                  |   |    |    |                |
|------------------|---|----|----|----------------|
|                  | P | SU | WB |                |
| Design Vehicles: | x | x  | x  | (place an "X") |

## ISD CASE B1: Left Turn from Minor Street or Median (driver looking right)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 7.50  | 9.50  | 11.50 | 10.00                    | 12.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 7.50  | 9.50  | 11.50 | 10.00                    | 12.00 | 13.00 |
| Case B1 ISD, feet:          | 330.0 | 418.0 | 506.0 | 440.0                    | 528.0 | 572.0 |
| Rounded Case B1 ISD, feet:  | 335   | 420   | 510   | 445                      | 530   | 575   |

## ISD CASE B2: Right Turn from Minor Street (driver looking left)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 8.00                     | 10.00 | 12.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 6.50  | 8.50  | 10.50 | 8.00                     | 10.00 | 12.00 |
| Case B2 ISD, feet:          | 286.0 | 374.0 | 462.0 | 352.0                    | 440.0 | 528.0 |
| Rounded Case B2 ISD, feet:  | 290   | 375   | 465   | 355                      | 445   | 530   |

## ISD CASE B3a: Crossing from Minor Street Traffic from Left (driver looking left)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Case B3a ISD, feet:         | 286.0 | 374.0 | 462.0 | 308.0                    | 440.0 | 572.0 |
| Rounded Case B3a ISD, feet: | 290   | 375   | 465   | 310                      | 445   | 575   |

## ISD CASE B3b: Crossing from Minor Street or Median (driver looking right)

| AASHTO MINIMUM ISD          |       |       |        | WISDOT UPPER MINIMUM ISD |        |        |
|-----------------------------|-------|-------|--------|--------------------------|--------|--------|
|                             | P     | SU    | WB     | P                        | SU     | WB     |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50  | 7.00                     | 10.00  | 13.00  |
| Additional Time Gap 1, sec: | -6.50 | -8.50 | -10.50 | -7.00                    | -10.00 | -13.00 |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00   | 0.00                     | 0.00   | 0.00   |
| Total Time Gap, sec:        | 0.00  | 0.00  | 0.00   | 0.00                     | 0.00   | 0.00   |
| Case B3b ISD, feet:         | 0.0   | 0.0   | 0.0    | 0.0                      | 0.0    | 0.0    |
| Rounded Case B3b ISD, feet: | 0     | 0     | 0      | 0                        | 0      | 0      |

## ISD CASE F: Left from Major to Minor (driver looking to left of access towards oncoming traffic)

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 5.50  | 6.50  | 7.50  | 8.00                     | 8.00  | 8.00  |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | N/A   | N/A   | N/A   | N/A                      | N/A   | N/A   |
| Total Time Gap, sec:        | 5.50  | 6.50  | 7.50  | 8.00                     | 8.00  | 8.00  |
| Case F ISD, feet:           | 242.0 | 286.0 | 330.0 | 352.0                    | 352.0 | 352.0 |
| Rounded Case F ISD, feet:   | 245   | 290   | 335   | 355                      | 355   | 355   |

## ISD CONTROLLING DISTANCES:

| AASHTO MINIMUM ISD       |      |      |      | WISDOT UPPER MINIMUM ISD |      |      |
|--------------------------|------|------|------|--------------------------|------|------|
|                          | P    | SU   | WB   |                          |      |      |
| To Left of Access:       | 290' | 375' | 465' | 355'                     | 445' | 575' |
| To Right of Access:      | 335' | 420' | 510' | 445'                     | 530' | 575' |
| Left-Turn from Mainline: | 245' | 290' | 335' | 355'                     | 355' | 355' |

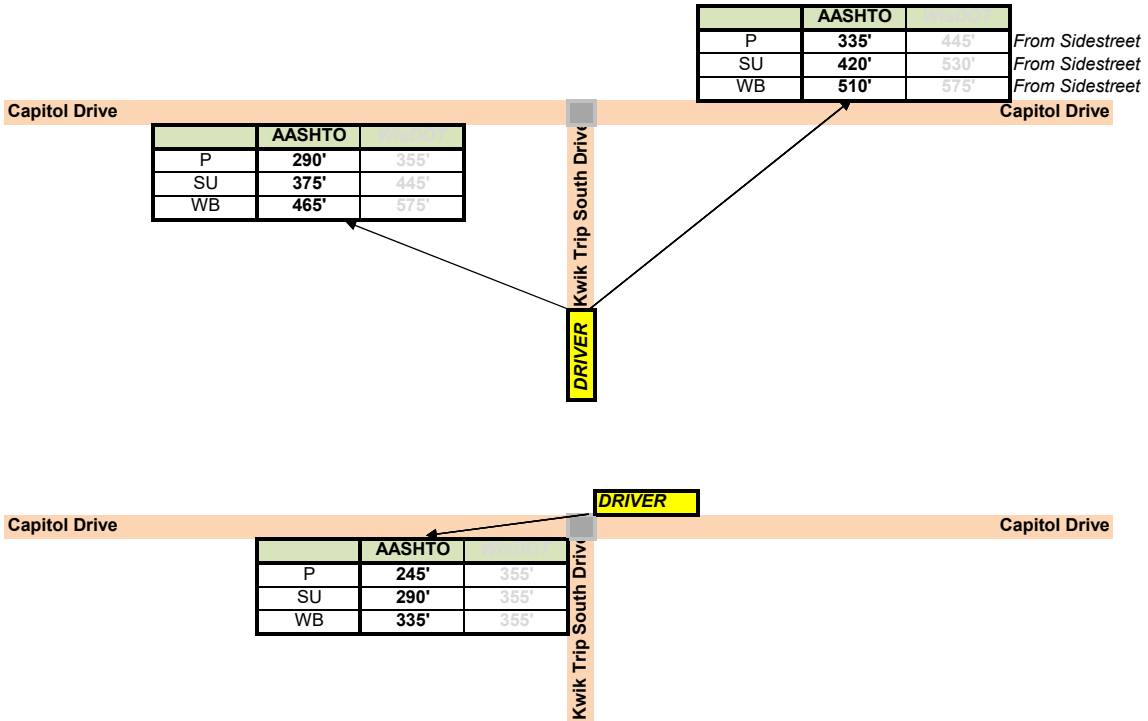
## ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 3/24/2023  
 Intersection: Capitol Drive & Kwik Trip South Driveway  
 Community: Hartland, WI

North

Eye Height (start of Arrows): 3.5-ft for P, 7.6-ft for SU & WB  
 Object Height (head of Arrows): 3.5-ft  
 Eye Location: 14.5-ft from edge of traveled way

### Special Instructions



## SSD CALCULATIONS

|                                    | EB    | WB    | NB   | SB   |                                                        |
|------------------------------------|-------|-------|------|------|--------------------------------------------------------|
| Design Speed:                      | 30    | 30    |      |      |                                                        |
| Deceleration (ft/s <sup>2</sup> ): | 11.2  | 11.2  | 11.2 | 11.2 | Default rate is 11.2 ft/s <sup>2</sup> per AASHTO GDHS |
| Estimated Grade (%):               | 0.0%  | 0.0%  | 0.0% | 0.0% | Positive is uphill, negative is downhill               |
| Brake Reaction Time (s):           | 2.5   | 2.5   | 2.5  | 2.5  | Default rate is 2.5s per AASHTO GDHS                   |
| Brake Reaction (ft):               | 110.0 | 110.0 | 0.0  | 0.0  |                                                        |
| Braking Distance (ft):             | 86.3  | 86.3  | 0.0  | 0.0  |                                                        |
| Calculated SSD (ft):               | 196.3 | 196.3 | 0.0  | 0.0  |                                                        |
| Rounded SSD (ft):                  | 200   | 200   | 0    | 0    |                                                        |

Eye Height (upstream of object to be seen): 3.5-ft  
 Object Height (downstream of motorist): 2.0-ft

### Special Instructions

**ISD CALCULATIONS (TWSC)**

Performed by: **TADI - TSC** Date: **3/24/2023**  
 Intersection: **Capitol Drive & Vettelson Rd./Hartland Quarry Apts Dwy**  
 Community: **Hartland, WI**

Mainline Name: **Capitol Drive**  
 Sidestreet Name: **Vettelson Road/Hartland Quarry Apts Driveway**

|                                   |        |                                                                                                     |  |
|-----------------------------------|--------|-----------------------------------------------------------------------------------------------------|--|
| Left-In Allowed?                  | Yes    |                                                                                                     |  |
| Left-Out Allowed?                 | Yes    |                                                                                                     |  |
| Right-In Allowed?                 | Yes    |                                                                                                     |  |
| Right-Out Allowed?                | Yes    |                                                                                                     |  |
| Through-Out Allowed?              | Yes    |                                                                                                     |  |
| Design Speed from Left:           | 30     | mph                                                                                                 |  |
| Design Speed from Right:          | 30     | mph                                                                                                 |  |
| Median Width:                     | 12     | feet                                                                                                |  |
| Minor Street Approach Grade:      | 0.0%   | If a minor street vehicle approaches the major street at greater than 3%, enter grade.              |  |
| Number of Near Side Right & Bike: | 0.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| Number of Near Side Thru:         | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Thru:          | 1.00   | equivalent 12-ft lanes.                                                                             |  |
| Number of Far Side Right & Bike:  | 0.00   | equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations. |  |
| AASHTO or WisDOT:                 | AASHTO |                                                                                                     |  |

|                           |      |                                                    |
|---------------------------|------|----------------------------------------------------|
| P-vehicle Design Length:  | 19.0 | feet (P = 19.0. Overwrite if other design veh)     |
| SU-vehicle Design Length: | 39.5 | feet (SU-40 = 39.5. Overwrite if other design veh) |
| WB-vehicle Design Length: | 73.5 | feet (WB-67 = 73.5. Overwrite if other design veh) |

|                  |   |    |                |
|------------------|---|----|----------------|
|                  | P | SU | WB             |
| Design Vehicles: | x | x  | (place an "X") |

**ISD CASE B1: Left Turn from Minor Street or Median (driver looking right)**

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 7.50  | 9.50  | 11.50 | 10.00                    | 12.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.50  | 0.70  | 0.70  | 0.50                     | 0.70  | 0.70  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 8.00  | 10.20 | 12.20 | 10.50                    | 12.70 | 13.70 |
| Case B1 ISD, feet:          | 352.0 | 448.8 | 536.8 | 462.0                    | 558.8 | 602.8 |
| Rounded Case B1 ISD, feet:  | 355   | 450   | 540   | 465                      | 560   | 605   |

**ISD CASE B2: Right Turn from Minor Street (driver looking left)**

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 8.00                     | 10.00 | 12.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 6.50  | 8.50  | 10.50 | 8.00                     | 10.00 | 12.00 |
| Case B2 ISD, feet:          | 286.0 | 374.0 | 462.0 | 352.0                    | 440.0 | 528.0 |
| Rounded Case B2 ISD, feet:  | 290   | 375   | 465   | 355                      | 445   | 530   |

**ISD CASE B3a: Crossing from Minor Street Traffic from Left (driver looking left)**

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Case B3a ISD, feet:         | 286.0 | 374.0 | 462.0 | 308.0                    | 440.0 | 572.0 |
| Rounded Case B3a ISD, feet: | 290   | 375   | 465   | 310                      | 445   | 575   |

**ISD CASE B3b: Crossing from Minor Street or Median (driver looking right)**

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 6.50  | 8.50  | 10.50 | 7.00                     | 10.00 | 13.00 |
| Additional Time Gap 1, sec: | 0.50  | 0.70  | 0.70  | 0.50                     | 0.70  | 0.70  |
| Additional Time Gap 2, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Total Time Gap, sec:        | 7.00  | 9.20  | 11.20 | 7.50                     | 10.70 | 13.70 |
| Case B3b ISD, feet:         | 308.0 | 404.8 | 492.8 | 330.0                    | 470.8 | 602.8 |
| Rounded Case B3b ISD, feet: | 310   | 405   | 495   | 335                      | 475   | 605   |

**ISD CASE F: Left from Major to Minor (driver looking to left of access towards oncoming traffic)**

| AASHTO MINIMUM ISD          |       |       |       | WISDOT UPPER MINIMUM ISD |       |       |
|-----------------------------|-------|-------|-------|--------------------------|-------|-------|
|                             | P     | SU    | WB    | P                        | SU    | WB    |
| Base Time Gap, sec:         | 5.50  | 6.50  | 7.50  | 8.00                     | 8.00  | 8.00  |
| Additional Time Gap 1, sec: | 0.00  | 0.00  | 0.00  | 0.00                     | 0.00  | 0.00  |
| Additional Time Gap 2, sec: | N/A   | N/A   | N/A   | N/A                      | N/A   | N/A   |
| Total Time Gap, sec:        | 5.50  | 6.50  | 7.50  | 8.00                     | 8.00  | 8.00  |
| Case F ISD, feet:           | 242.0 | 286.0 | 330.0 | 352.0                    | 352.0 | 352.0 |
| Rounded Case F ISD, feet:   | 245   | 290   | 335   | 355                      | 355   | 355   |

**ISD CONTROLLING DISTANCES:**

| AASHTO MINIMUM ISD       |      |      |      | WISDOT UPPER MINIMUM ISD |      |      |
|--------------------------|------|------|------|--------------------------|------|------|
|                          | P    | SU   | WB   | P                        | SU   | WB   |
| To Left of Access:       | 290' | 375' | 465' | 355'                     | 445' | 575' |
| To Right of Access:      | 355' | 450' | 540' | 465'                     | 560' | 605' |
| Left-Turn from Mainline: | 245' | 290' | 335' | 355'                     | 355' | 355' |



# **APPENDIX B**

## **Year 2023 Background Traffic Operational Analysis**

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Existing  
AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)       | 20                                                                                | 5                                                                                 | 20                                                                                | 30                                                                                | 10                                                                                | 105                                                                               | 20                                                                                  | 225                                                                                 | 20                                                                                  | 25                                                                                  | 475                                                                                 | 45                                                                                  |
| Future Volume (vph)        | 20                                                                                | 5                                                                                 | 20                                                                                | 30                                                                                | 10                                                                                | 105                                                                               | 20                                                                                  | 225                                                                                 | 20                                                                                  | 25                                                                                  | 475                                                                                 | 45                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Storage Length (ft)        | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     | 1                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     | 35                                                                                  |                                                                                     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     | 633                                                                                 |                                                                                     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     | 12.3                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |
| Heavy Vehicles (%)         | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 10%                                                                                 | 10%                                                                                 | 10%                                                                                 | 5%                                                                                  | 5%                                                                                  | 5%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 27                                                                                | 7                                                                                 | 17                                                                                | 40                                                                                | 13                                                                                | 87                                                                                | 27                                                                                  | 300                                                                                 | 17                                                                                  | 33                                                                                  | 633                                                                                 | 37                                                                                  |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     |
| Permitted Phases           | 4                                                                                 |                                                                                   | 4                                                                                 | 8                                                                                 |                                                                                   | 8                                                                                 | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Existing  
AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                                | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.16                                                                              | 0.03                                                                              | 0.09                                                                              | 0.24                                                                              | 0.06                                                                              | 0.46                                                                              | 0.04                                                                                | 0.13                                                                                | 0.02                                                                                | 0.04                                                                                | 0.25                                                                                | 0.03                                                                                |
| Control Delay           | 37.5                                                                              | 34.6                                                                              | 35.8                                                                              | 39.2                                                                              | 35.1                                                                              | 44.9                                                                              | 3.1                                                                                 | 5.8                                                                                 | 6.5                                                                                 | 3.0                                                                                 | 5.6                                                                                 | 5.8                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 37.5                                                                              | 34.6                                                                              | 35.8                                                                              | 39.2                                                                              | 35.1                                                                              | 44.9                                                                              | 3.1                                                                                 | 5.8                                                                                 | 6.5                                                                                 | 3.0                                                                                 | 5.6                                                                                 | 5.8                                                                                 |
| Queue Length 50th (ft)  | 14                                                                                | 4                                                                                 | 9                                                                                 | 21                                                                                | 7                                                                                 | 47                                                                                | 3                                                                                   | 32                                                                                  | 3                                                                                   | 4                                                                                   | 45                                                                                  | 4                                                                                   |
| Queue Length 95th (ft)  | 31                                                                                | 13                                                                                | 23                                                                                | 42                                                                                | 19                                                                                | 74                                                                                | 8                                                                                   | 43                                                                                  | 10                                                                                  | 9                                                                                   | 90                                                                                  | 16                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                     | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 305                                                                               | 407                                                                               | 346                                                                               | 310                                                                               | 411                                                                               | 350                                                                               | 660                                                                                 | 2387                                                                                | 1067                                                                                | 875                                                                                 | 2580                                                                                | 1154                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.09                                                                              | 0.02                                                                              | 0.05                                                                              | 0.13                                                                              | 0.03                                                                              | 0.25                                                                              | 0.04                                                                                | 0.13                                                                                | 0.02                                                                                | 0.04                                                                                | 0.25                                                                                | 0.03                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Existing  
AM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 20                                                                                | 5                                                                                 | 20                                                                                | 30                                                                                | 10                                                                                | 105                                                                               | 20                                                                                  | 225                                                                                 | 20                                                                                  | 25                                                                                  | 475                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 20                                                                                | 5                                                                                 | 20                                                                                | 30                                                                                | 10                                                                                | 105                                                                               | 20                                                                                  | 225                                                                                 | 20                                                                                  | 25                                                                                  | 475                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1752                                                                                | 1752                                                                                | 1752                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 7                                                                                 | 17                                                                                | 40                                                                                | 13                                                                                | 87                                                                                | 27                                                                                  | 300                                                                                 | 17                                                                                  | 33                                                                                  | 633                                                                                 | 37                                                                                  |
| Peak Hour Factor             | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 215                                                                               | 206                                                                               | 175                                                                               | 229                                                                               | 208                                                                               | 176                                                                               | 567                                                                                 | 2231                                                                                | 995                                                                                 | 806                                                                                 | 2341                                                                                | 1044                                                                                |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.03                                                                                | 0.67                                                                                | 0.67                                                                                | 0.04                                                                                | 0.67                                                                                | 0.67                                                                                |
| Sat Flow, veh/h              | 1295                                                                              | 1870                                                                              | 1585                                                                              | 1398                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 3328                                                                                | 1485                                                                                | 1739                                                                                | 3469                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h         | 27                                                                                | 7                                                                                 | 17                                                                                | 40                                                                                | 13                                                                                | 87                                                                                | 27                                                                                  | 300                                                                                 | 17                                                                                  | 33                                                                                  | 633                                                                                 | 37                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1295                                                                              | 1870                                                                              | 1585                                                                              | 1398                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 1664                                                                                | 1485                                                                                | 1739                                                                                | 1735                                                                                | 1547                                                                                |
| Q Serve(g_s), s              | 1.7                                                                               | 0.3                                                                               | 0.9                                                                               | 2.4                                                                               | 0.6                                                                               | 4.6                                                                               | 0.4                                                                                 | 2.9                                                                                 | 0.3                                                                                 | 0.5                                                                                 | 6.5                                                                                 | 0.7                                                                                 |
| Cycle Q Clear(g_c), s        | 2.3                                                                               | 0.3                                                                               | 0.9                                                                               | 2.7                                                                               | 0.6                                                                               | 4.6                                                                               | 0.4                                                                                 | 2.9                                                                                 | 0.3                                                                                 | 0.5                                                                                 | 6.5                                                                                 | 0.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 215                                                                               | 206                                                                               | 175                                                                               | 229                                                                               | 208                                                                               | 176                                                                               | 567                                                                                 | 2231                                                                                | 995                                                                                 | 806                                                                                 | 2341                                                                                | 1044                                                                                |
| V/C Ratio(X)                 | 0.13                                                                              | 0.03                                                                              | 0.10                                                                              | 0.17                                                                              | 0.06                                                                              | 0.49                                                                              | 0.05                                                                                | 0.13                                                                                | 0.02                                                                                | 0.04                                                                                | 0.27                                                                                | 0.04                                                                                |
| Avail Cap(c_a), veh/h        | 355                                                                               | 409                                                                               | 347                                                                               | 381                                                                               | 413                                                                               | 350                                                                               | 689                                                                                 | 2231                                                                                | 995                                                                                 | 925                                                                                 | 2341                                                                                | 1044                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.9                                                                              | 35.8                                                                              | 36.0                                                                              | 37.0                                                                              | 35.9                                                                              | 37.7                                                                              | 4.3                                                                                 | 5.4                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.8                                                                                 | 4.9                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               | 0.1                                                                               | 0.0                                                                               | 0.8                                                                               | 0.0                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.3                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 0.1                                                                               | 0.3                                                                               | 0.8                                                                               | 0.3                                                                               | 1.8                                                                               | 0.1                                                                                 | 0.9                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 2.0                                                                                 | 0.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 37.0                                                                              | 35.8                                                                              | 36.1                                                                              | 37.1                                                                              | 35.9                                                                              | 38.5                                                                              | 4.3                                                                                 | 5.5                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 6.1                                                                                 | 4.9                                                                                 |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 51                                                                                |                                                                                   |                                                                                   | 140                                                                               |                                                                                   |                                                                                   | 344                                                                                 |                                                                                     |                                                                                     | 703                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 36.5                                                                              |                                                                                   |                                                                                   | 37.8                                                                              |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 5.9                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.4                                                                               | 66.3                                                                              |                                                                                   | 16.2                                                                              | 7.9                                                                               | 65.9                                                                              |                                                                                     | 16.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               |                                                                                   | * 6.3                                                                             | 4.5                                                                               | 5.6                                                                               |                                                                                     | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              |                                                                                   | * 20                                                                              | 9.5                                                                               | 44.4                                                                              |                                                                                     | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.4                                                                               | 8.5                                                                               |                                                                                   | 4.3                                                                               | 2.5                                                                               | 4.9                                                                               |                                                                                     | 6.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 9.2                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 4.0                                                                               |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

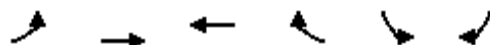
|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 10.7 |
| HCM 6th LOS        | B    |

### Notes

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

Lanes, Volumes, Timings  
200: Capitol Drive & Palmer Drive

2023 Existing  
AM Peak Hour



| Lane Group                  | EBL          | EBT  | WBT  | WBR   | SBL  | SBR   |
|-----------------------------|--------------|------|------|-------|------|-------|
| Lane Configurations         |              |      |      |       |      |       |
| Traffic Volume (vph)        | 20           | 30   | 40   | 1     | 1    | 105   |
| Future Volume (vph)         | 20           | 30   | 40   | 1     | 1    | 105   |
| Ideal Flow (vphpl)          | 1900         | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Width (ft)             | 12           | 12   | 12   | 12    | 12   | 12    |
| Grade (%)                   |              | 0%   | 0%   |       | 0%   |       |
| Storage Length (ft)         | 100          |      |      | 0     | 0    | 0     |
| Storage Lanes               | 1            |      |      | 0     | 1    | 0     |
| Taper Length (ft)           | 100          |      |      |       | 100  |       |
| Link Speed (mph)            |              | 25   | 25   |       | 25   |       |
| Link Distance (ft)          |              | 374  | 284  |       | 419  |       |
| Travel Time (s)             |              | 10.2 | 7.7  |       | 11.4 |       |
| Confl. Peds. (#/hr)         |              |      |      |       |      |       |
| Confl. Bikes (#/hr)         |              |      |      |       |      |       |
| Peak Hour Factor            | 0.82         | 0.82 | 0.82 | 0.82  | 0.82 | 0.82  |
| Growth Factor               | 100%         | 100% | 100% | 100%  | 100% | 100%  |
| Heavy Vehicles (%)          | 7%           | 7%   | 5%   | 5%    | 2%   | 2%    |
| Bus Blockages (#/hr)        | 0            | 0    | 0    | 0     | 0    | 0     |
| Parking (#/hr)              |              |      |      |       |      |       |
| Mid-Block Traffic (%)       |              | 0%   | 0%   |       | 0%   |       |
| Shared Lane Traffic (%)     |              |      |      |       |      |       |
| Lane Group Flow (vph)       | 24           | 37   | 50   | 0     | 129  | 0     |
| Enter Blocked Intersection  | No           | No   | No   | No    | No   | No    |
| Lane Alignment              | Left         | Left | Left | Right | Left | Right |
| Median Width(ft)            |              | 12   | 12   |       | 12   |       |
| Link Offset(ft)             |              | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)         |              | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane      |              |      |      |       |      |       |
| Headway Factor              | 1.00         | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)         | 15           |      |      | 9     | 15   | 9     |
| Sign Control                |              | Free | Free |       | Stop |       |
| <b>Intersection Summary</b> |              |      |      |       |      |       |
| Area Type:                  | Other        |      |      |       |      |       |
| Control Type:               | Unsignalized |      |      |       |      |       |

Intersection

Int Delay, s/veh 5.7

| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |  |  |      |  |      |
| Traffic Vol, veh/h       | 20                                                                                | 30                                                                                | 40                                                                                | 1    | 1                                                                                 | 105  |
| Future Vol, veh/h        | 20                                                                                | 30                                                                                | 40                                                                                | 1    | 1                                                                                 | 105  |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | 100                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 82                                                                                | 82                                                                                | 82                                                                                | 82   | 82                                                                                | 82   |
| Heavy Vehicles, %        | 7                                                                                 | 7                                                                                 | 5                                                                                 | 5    | 2                                                                                 | 2    |
| Mvmt Flow                | 24                                                                                | 37                                                                                | 49                                                                                | 1    | 1                                                                                 | 128  |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 50     | 0      | 0 135 50      |
| Stage 1              | -      | -      | - 50 -        |
| Stage 2              | -      | -      | - 85 -        |
| Critical Hdwy        | 4.17   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.263  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1525   | -      | - 859 1018    |
| Stage 1              | -      | -      | - 972 -       |
| Stage 2              | -      | -      | - 938 -       |
| Platoon blocked, %   |        | -      | -             |
| Mov Cap-1 Maneuver   | 1525   | -      | - 845 1018    |
| Mov Cap-2 Maneuver   | -      | -      | - 845 -       |
| Stage 1              | -      | -      | - 956 -       |
| Stage 2              | -      | -      | - 938 -       |

| Approach             | EB | WB | SB  |
|----------------------|----|----|-----|
| HCM Control Delay, s | 3  | 0  | 9.1 |
| HCM LOS              |    |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1525  | -   | -   | -   | 1016  |
| HCM Lane V/C Ratio    | 0.016 | -   | -   | -   | 0.127 |
| HCM Control Delay (s) | 7.4   | -   | -   | -   | 9.1   |
| HCM Lane LOS          | A     | -   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.4   |

Lanes, Volumes, Timings  
400: Vettelson Road & Capitol Drive

2023 Existing  
AM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |  |
| Traffic Volume (vph)       | 25                                                                                | 5                                                                                 | 15                                                                                | 25                                                                                | 15                                                                                | 15                                                                                |
| Future Volume (vph)        | 25                                                                                | 5                                                                                 | 15                                                                                | 25                                                                                | 15                                                                                | 15                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 50                                                                                |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               | 458                                                                               |                                                                                   |
| Travel Time (s)            | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              | 12.5                                                                              |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 11%                                                                               | 11%                                                                               | 5%                                                                                | 5%                                                                                | 10%                                                                               | 10%                                                                               |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 40                                                                                | 0                                                                                 | 0                                                                                 | 53                                                                                | 20                                                                                | 20                                                                                |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Intersection

Int Delay, s/veh 3.8

| Movement                 | EBT                                                                               | EBR  | WBL  | WBT                                                                               | NBL                                                                               | NBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |      |      |  |  |  |
| Traffic Vol, veh/h       | 25                                                                                | 5    | 15   | 25                                                                                | 15                                                                                | 15                                                                                |
| Future Vol, veh/h        | 25                                                                                | 5    | 15   | 25                                                                                | 15                                                                                | 15                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free | Free | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None | -    | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | -                                                                                 | -    | -    | -                                                                                 | 0                                                                                 | 50                                                                                |
| Veh in Median Storage, # | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 75                                                                                | 75   | 75   | 75                                                                                | 75                                                                                | 75                                                                                |
| Heavy Vehicles, %        | 11                                                                                | 11   | 5    | 5                                                                                 | 10                                                                                | 10                                                                                |
| Mvmt Flow                | 33                                                                                | 7    | 20   | 33                                                                                | 20                                                                                | 20                                                                                |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 40     |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.15   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.245  |
| Pot Cap-1 Maneuver   | -      | -      | 1550   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1550   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB |
|----------------------|----|-----|----|
| HCM Control Delay, s | 0  | 2.8 | 9  |
| HCM LOS              |    |     | A  |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 857   | 1013  | -   | -   | 1550  | -   |
| HCM Lane V/C Ratio    | 0.023 | 0.02  | -   | -   | 0.013 | -   |
| HCM Control Delay (s) | 9.3   | 8.6   | -   | -   | 7.4   | 0   |
| HCM Lane LOS          | A     | A     | -   | -   | A     | A   |
| HCM 95th %tile Q(veh) | 0.1   | 0.1   | -   | -   | 0     | -   |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Existing  
PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |  |  |  |    |  |  |  |  |  |
| Traffic Volume (vph)       | 95                                                                                | 25                                                                                | 35                                                                                | 25                                                                                | 15                                                                                | 70                                                                                | 50                                                                                  | 670                                                                                 | 60                                                                                  | 85                                                                                  | 390                                                                                 | 105                                                                                 |
| Future Volume (vph)        | 95                                                                                | 25                                                                                | 35                                                                                | 25                                                                                | 15                                                                                | 70                                                                                | 50                                                                                  | 670                                                                                 | 60                                                                                  | 85                                                                                  | 390                                                                                 | 105                                                                                 |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Storage Length (ft)        | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     | 1                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     | 35                                                                                  |                                                                                     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     | 633                                                                                 |                                                                                     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     | 12.3                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 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                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |
| Heavy Vehicles (%)         | 1%                                                                                | 1%                                                                                | 1%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                  | 1%                                                                                  | 1%                                                                                  | 3%                                                                                  | 3%                                                                                  | 3%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 100                                                                               | 26                                                                                | 23                                                                                | 26                                                                                | 16                                                                                | 46                                                                                | 53                                                                                  | 705                                                                                 | 39                                                                                  | 89                                                                                  | 411                                                                                 | 69                                                                                  |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     |
| Permitted Phases           | 4                                                                                 |                                                                                   | 4                                                                                 | 8                                                                                 |                                                                                   | 8                                                                                 | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Existing  
PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                               | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                               | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.55                                                                              | 0.11                                                                              | 0.11                                                                              | 0.15                                                                              | 0.07                                                                              | 0.23                                                                              | 0.07                                                                               | 0.28                                                                                | 0.04                                                                                | 0.15                                                                                | 0.16                                                                                | 0.06                                                                                |
| Control Delay           | 48.2                                                                              | 34.4                                                                              | 34.7                                                                              | 35.6                                                                              | 33.7                                                                              | 37.0                                                                              | 3.6                                                                                | 7.8                                                                                 | 7.5                                                                                 | 4.0                                                                                 | 6.5                                                                                 | 7.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 48.2                                                                              | 34.4                                                                              | 34.7                                                                              | 35.6                                                                              | 33.7                                                                              | 37.0                                                                              | 3.6                                                                                | 7.8                                                                                 | 7.5                                                                                 | 4.0                                                                                 | 6.5                                                                                 | 7.1                                                                                 |
| Queue Length 50th (ft)  | 55                                                                                | 14                                                                                | 12                                                                                | 14                                                                                | 8                                                                                 | 24                                                                                | 6                                                                                  | 85                                                                                  | 7                                                                                   | 10                                                                                  | 45                                                                                  | 13                                                                                  |
| Queue Length 95th (ft)  | 101                                                                               | 35                                                                                | 33                                                                                | 36                                                                                | 26                                                                                | 54                                                                                | 18                                                                                 | 139                                                                                 | 23                                                                                  | 26                                                                                  | 77                                                                                  | 34                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                    | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 307                                                                               | 411                                                                               | 350                                                                               | 301                                                                               | 407                                                                               | 346                                                                               | 833                                                                                | 2474                                                                                | 1107                                                                                | 632                                                                                 | 2513                                                                                | 1124                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.33                                                                              | 0.06                                                                              | 0.07                                                                              | 0.09                                                                              | 0.04                                                                              | 0.13                                                                              | 0.06                                                                               | 0.28                                                                                | 0.04                                                                                | 0.14                                                                                | 0.16                                                                                | 0.06                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Existing  
PM Peak Hour

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 95                                                                                | 25                                                                                | 35                                                                                | 25                                                                                | 15                                                                                | 70                                                                                | 50                                                                                  | 670                                                                                 | 60                                                                                  | 85                                                                                  | 390                                                                                 | 105                                                                                 |
| Future Volume (veh/h)        | 95                                                                                | 25                                                                                | 35                                                                                | 25                                                                                | 15                                                                                | 70                                                                                | 50                                                                                  | 670                                                                                 | 60                                                                                  | 85                                                                                  | 390                                                                                 | 105                                                                                 |
| 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                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 100                                                                               | 26                                                                                | 23                                                                                | 26                                                                                | 16                                                                                | 46                                                                                | 53                                                                                  | 705                                                                                 | 39                                                                                  | 89                                                                                  | 411                                                                                 | 69                                                                                  |
| 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                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 219                                                                               | 209                                                                               | 177                                                                               | 213                                                                               | 207                                                                               | 176                                                                               | 733                                                                                 | 2319                                                                                | 1034                                                                                | 584                                                                                 | 2320                                                                                | 1035                                                                                |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.05                                                                                | 0.65                                                                                | 0.65                                                                                | 0.06                                                                                | 0.66                                                                                | 0.66                                                                                |
| Sat Flow, veh/h              | 1351                                                                              | 1885                                                                              | 1598                                                                              | 1356                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 3582                                                                                | 1598                                                                                | 1767                                                                                | 3526                                                                                | 1572                                                                                |
| Grp Volume(v), veh/h         | 100                                                                               | 26                                                                                | 23                                                                                | 26                                                                                | 16                                                                                | 46                                                                                | 53                                                                                  | 705                                                                                 | 39                                                                                  | 89                                                                                  | 411                                                                                 | 69                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1351                                                                              | 1885                                                                              | 1598                                                                              | 1356                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 1791                                                                                | 1598                                                                                | 1767                                                                                | 1763                                                                                | 1572                                                                                |
| Q Serve(g_s), s              | 6.5                                                                               | 1.1                                                                               | 1.2                                                                               | 1.6                                                                               | 0.7                                                                               | 2.4                                                                               | 0.8                                                                                 | 7.8                                                                                 | 0.8                                                                                 | 1.4                                                                                 | 4.1                                                                                 | 1.4                                                                                 |
| Cycle Q Clear(g_c), s        | 7.1                                                                               | 1.1                                                                               | 1.2                                                                               | 2.7                                                                               | 0.7                                                                               | 2.4                                                                               | 0.8                                                                                 | 7.8                                                                                 | 0.8                                                                                 | 1.4                                                                                 | 4.1                                                                                 | 1.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 219                                                                               | 209                                                                               | 177                                                                               | 213                                                                               | 207                                                                               | 176                                                                               | 733                                                                                 | 2319                                                                                | 1034                                                                                | 584                                                                                 | 2320                                                                                | 1035                                                                                |
| V/C Ratio(X)                 | 0.46                                                                              | 0.12                                                                              | 0.13                                                                              | 0.12                                                                              | 0.08                                                                              | 0.26                                                                              | 0.07                                                                                | 0.30                                                                                | 0.04                                                                                | 0.15                                                                                | 0.18                                                                                | 0.07                                                                                |
| Avail Cap(c_a), veh/h        | 365                                                                               | 413                                                                               | 350                                                                               | 360                                                                               | 409                                                                               | 347                                                                               | 835                                                                                 | 2319                                                                                | 1034                                                                                | 665                                                                                 | 2320                                                                                | 1035                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 39.1                                                                              | 36.1                                                                              | 36.1                                                                              | 37.3                                                                              | 35.9                                                                              | 36.6                                                                              | 4.3                                                                                 | 7.0                                                                                 | 5.7                                                                                 | 4.5                                                                                 | 6.0                                                                                 | 5.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.5                                                                               | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.3                                                                               | 0.0                                                                                 | 0.3                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.2                                                                               | 0.5                                                                               | 0.5                                                                               | 0.5                                                                               | 0.3                                                                               | 0.9                                                                               | 0.2                                                                                 | 2.6                                                                                 | 0.2                                                                                 | 0.4                                                                                 | 1.3                                                                                 | 0.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 39.6                                                                              | 36.2                                                                              | 36.2                                                                              | 37.4                                                                              | 35.9                                                                              | 36.9                                                                              | 4.3                                                                                 | 7.3                                                                                 | 5.8                                                                                 | 4.5                                                                                 | 6.1                                                                                 | 5.6                                                                                 |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 149                                                                               |                                                                                   |                                                                                   | 88                                                                                |                                                                                   |                                                                                   | 797                                                                                 |                                                                                     |                                                                                     | 569                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 38.5                                                                              |                                                                                   |                                                                                   | 36.9                                                                              |                                                                                   |                                                                                   | 7.0                                                                                 |                                                                                     |                                                                                     | 5.8                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                 | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.9                                                                               | 64.8                                                                              | 16.3                                                                              |                                                                                   | 9.9                                                                               | 63.9                                                                              | 16.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                             |                                                                                   | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              | * 20                                                                              |                                                                                   | 9.5                                                                               | 44.4                                                                              | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.8                                                                               | 6.1                                                                               | 9.1                                                                               |                                                                                   | 3.4                                                                               | 9.8                                                                               | 4.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 6.0                                                                               | 0.1                                                                               |                                                                                   | 0.0                                                                               | 10.3                                                                              | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 11.2

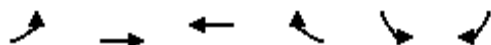
HCM 6th LOS B

### Notes

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

Lanes, Volumes, Timings  
200: Capitol Drive & Palmer Drive

2023 Existing  
PM Peak Hour



| Lane Group                  | EBL          | EBT  | WBT  | WBR   | SBL  | SBR   |
|-----------------------------|--------------|------|------|-------|------|-------|
| Lane Configurations         |              |      |      |       |      |       |
| Traffic Volume (vph)        | 105          | 65   | 50   | 5     | 10   | 60    |
| Future Volume (vph)         | 105          | 65   | 50   | 5     | 10   | 60    |
| Ideal Flow (vphpl)          | 1900         | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Width (ft)             | 12           | 12   | 12   | 12    | 12   | 12    |
| Grade (%)                   |              | 0%   | 0%   |       | 0%   |       |
| Storage Length (ft)         | 100          |      |      | 0     | 0    | 0     |
| Storage Lanes               | 1            |      |      | 0     | 1    | 0     |
| Taper Length (ft)           | 100          |      |      |       | 100  |       |
| Link Speed (mph)            |              | 25   | 25   |       | 25   |       |
| Link Distance (ft)          |              | 374  | 284  |       | 419  |       |
| Travel Time (s)             |              | 10.2 | 7.7  |       | 11.4 |       |
| Confl. Peds. (#/hr)         |              |      |      |       |      |       |
| Confl. Bikes (#/hr)         |              |      |      |       |      |       |
| Peak Hour Factor            | 0.90         | 0.90 | 0.90 | 0.90  | 0.90 | 0.90  |
| Growth Factor               | 100%         | 100% | 100% | 100%  | 100% | 100%  |
| Heavy Vehicles (%)          | 5%           | 5%   | 2%   | 2%    | 2%   | 2%    |
| Bus Blockages (#/hr)        | 0            | 0    | 0    | 0     | 0    | 0     |
| Parking (#/hr)              |              |      |      |       |      |       |
| Mid-Block Traffic (%)       |              | 0%   | 0%   |       | 0%   |       |
| Shared Lane Traffic (%)     |              |      |      |       |      |       |
| Lane Group Flow (vph)       | 117          | 72   | 62   | 0     | 78   | 0     |
| Enter Blocked Intersection  | No           | No   | No   | No    | No   | No    |
| Lane Alignment              | Left         | Left | Left | Right | Left | Right |
| Median Width(ft)            |              | 12   | 12   |       | 12   |       |
| Link Offset(ft)             |              | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)         |              | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane      |              |      |      |       |      |       |
| Headway Factor              | 1.00         | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)         | 15           |      |      | 9     | 15   | 9     |
| Sign Control                |              | Free | Free |       | Stop |       |
| <b>Intersection Summary</b> |              |      |      |       |      |       |
| Area Type:                  | Other        |      |      |       |      |       |
| Control Type:               | Unsignalized |      |      |       |      |       |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 4.9                                                                               |                                                                                   |                                                                                   |        |                                                                                   |       |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR   |
| Lane Configurations      |  |  |  |        |  |       |
| Traffic Vol, veh/h       | 105                                                                               | 65                                                                                | 50                                                                                | 5      | 10                                                                                | 60    |
| Future Vol, veh/h        | 105                                                                               | 65                                                                                | 50                                                                                | 5      | 10                                                                                | 60    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None   | -                                                                                 | None  |
| Storage Length           | 100                                                                               | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -     |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Peak Hour Factor         | 90                                                                                | 90                                                                                | 90                                                                                | 90     | 90                                                                                | 90    |
| Heavy Vehicles, %        | 5                                                                                 | 5                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2     |
| Mvmt Flow                | 117                                                                               | 72                                                                                | 56                                                                                | 6      | 11                                                                                | 67    |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Major/Minor              | Major1                                                                            | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |       |
| Conflicting Flow All     | 62                                                                                | 0                                                                                 | -                                                                                 | 0      | 365                                                                               | 59    |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 59                                                                                | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 306                                                                               | -     |
| Critical Hdwy            | 4.15                                                                              | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Follow-up Hdwy           | 2.245                                                                             | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | 1522                                                                              | -                                                                                 | -                                                                                 | -      | 635                                                                               | 1007  |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 964                                                                               | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 747                                                                               | -     |
| Platoon blocked, %       |                                                                                   | -                                                                                 | -                                                                                 | -      |                                                                                   |       |
| Mov Cap-1 Maneuver       | 1522                                                                              | -                                                                                 | -                                                                                 | -      | 586                                                                               | 1007  |
| Mov Cap-2 Maneuver       | -                                                                                 | -                                                                                 | -                                                                                 | -      | 586                                                                               | -     |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 890                                                                               | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 747                                                                               | -     |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Approach                 | EB                                                                                | WB                                                                                |                                                                                   | SB     |                                                                                   |       |
| HCM Control Delay, s     | 4.7                                                                               | 0                                                                                 |                                                                                   | 9.3    |                                                                                   |       |
| HCM LOS                  | A                                                                                 |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Minor Lane/Major Mvmt    | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR    | SBLn1                                                                             |       |
| Capacity (veh/h)         | 1522                                                                              | -                                                                                 | -                                                                                 | -      | 913                                                                               |       |
| HCM Lane V/C Ratio       | 0.077                                                                             | -                                                                                 | -                                                                                 | -      | 0.085                                                                             |       |
| HCM Control Delay (s)    | 7.6                                                                               | -                                                                                 | -                                                                                 | -      | 9.3                                                                               |       |
| HCM Lane LOS             | A                                                                                 | -                                                                                 | -                                                                                 | -      | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.2                                                                               | -                                                                                 | -                                                                                 | -      | 0.3                                                                               |       |

Lanes, Volumes, Timings  
400: Vettelson Road & Capitol Drive

2023 Existing  
PM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |  |
| Traffic Volume (vph)       | 65                                                                                | 10                                                                                | 20                                                                                | 40                                                                                | 15                                                                                | 20                                                                                |
| Future Volume (vph)        | 65                                                                                | 10                                                                                | 20                                                                                | 40                                                                                | 15                                                                                | 20                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 50                                                                                |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               | 458                                                                               |                                                                                   |
| Travel Time (s)            | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              | 12.5                                                                              |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 6%                                                                                | 6%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 90                                                                                | 0                                                                                 | 0                                                                                 | 72                                                                                | 18                                                                                | 24                                                                                |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Intersection

Int Delay, s/veh 2.8

| Movement                 | EBT                                                                               | EBR  | WBL  | WBT                                                                               | NBL                                                                               | NBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |      |      |  |  |  |
| Traffic Vol, veh/h       | 65                                                                                | 10   | 20   | 40                                                                                | 15                                                                                | 20                                                                                |
| Future Vol, veh/h        | 65                                                                                | 10   | 20   | 40                                                                                | 15                                                                                | 20                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free | Free | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None | -    | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | -                                                                                 | -    | -    | -                                                                                 | 0                                                                                 | 50                                                                                |
| Veh in Median Storage, # | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 83                                                                                | 83   | 83   | 83                                                                                | 83                                                                                | 83                                                                                |
| Heavy Vehicles, %        | 6                                                                                 | 6    | 1    | 1                                                                                 | 1                                                                                 | 1                                                                                 |
| Mvmt Flow                | 78                                                                                | 12   | 24   | 48                                                                                | 18                                                                                | 24                                                                                |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 90     |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.11   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.209  |
| Pot Cap-1 Maneuver   | -      | -      | 1512   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1512   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 2.5 | 9.1 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 799   | 978   | -   | -   | 1512  | -   |
| HCM Lane V/C Ratio    | 0.023 | 0.025 | -   | -   | 0.016 | -   |
| HCM Control Delay (s) | 9.6   | 8.8   | -   | -   | 7.4   | 0   |
| HCM Lane LOS          | A     | A     | -   | -   | A     | A   |
| HCM 95th %tile Q(veh) | 0.1   | 0.1   | -   | -   | 0     | -   |

# **APPENDIX C**

## **Year 2023 Build Traffic Operational Analysis**

### **Initial Buildout – Kwik Trip Only**

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (vph)       | 20                                                                                | 10                                                                                | 20                                                                                | 100                                                                               | 15                                                                                | 155                                                                               | 20                                                                                  | 205                                                                                 | 60                                                                                  | 110                                                                                 | 425                                                                                 | 45                                                                                  |
| Future Volume (vph)        | 20                                                                                | 10                                                                                | 20                                                                                | 100                                                                               | 15                                                                                | 155                                                                               | 20                                                                                  | 205                                                                                 | 60                                                                                  | 110                                                                                 | 425                                                                                 | 45                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Storage Length (ft)        | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     | 1                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     | 35                                                                                  |                                                                                     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     | 633                                                                                 |                                                                                     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     | 12.3                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |
| Heavy Vehicles (%)         | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 10%                                                                                 | 10%                                                                                 | 10%                                                                                 | 5%                                                                                  | 5%                                                                                  | 5%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 27                                                                                | 13                                                                                | 17                                                                                | 133                                                                               | 20                                                                                | 128                                                                               | 27                                                                                  | 273                                                                                 | 50                                                                                  | 147                                                                                 | 567                                                                                 | 37                                                                                  |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     |
| Permitted Phases           | 4                                                                                 |                                                                                   | 4                                                                                 | 8                                                                                 |                                                                                   | 8                                                                                 | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)  
AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                               | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                               | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.13                                                                              | 0.05                                                                              | 0.07                                                                              | 0.65                                                                              | 0.07                                                                              | 0.55                                                                              | 0.05                                                                               | 0.14                                                                                | 0.06                                                                                | 0.19                                                                                | 0.24                                                                                | 0.04                                                                                |
| Control Delay           | 33.2                                                                              | 31.1                                                                              | 31.8                                                                              | 50.7                                                                              | 31.7                                                                              | 44.2                                                                              | 4.5                                                                                | 9.0                                                                                 | 9.3                                                                                 | 4.6                                                                                 | 7.3                                                                                 | 7.5                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 33.2                                                                              | 31.1                                                                              | 31.8                                                                              | 50.7                                                                              | 31.7                                                                              | 44.2                                                                              | 4.5                                                                                | 9.0                                                                                 | 9.3                                                                                 | 4.6                                                                                 | 7.3                                                                                 | 7.5                                                                                 |
| Queue Length 50th (ft)  | 14                                                                                | 7                                                                                 | 9                                                                                 | 73                                                                                | 10                                                                                | 69                                                                                | 3                                                                                  | 31                                                                                  | 10                                                                                  | 19                                                                                  | 45                                                                                  | 5                                                                                   |
| Queue Length 95th (ft)  | 29                                                                                | 18                                                                                | 21                                                                                | 100                                                                               | 23                                                                                | 95                                                                                | 10                                                                                 | 51                                                                                  | 26                                                                                  | 37                                                                                  | 94                                                                                  | 19                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                    | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 303                                                                               | 407                                                                               | 346                                                                               | 308                                                                               | 411                                                                               | 350                                                                               | 634                                                                                | 1958                                                                                | 875                                                                                 | 791                                                                                 | 2322                                                                                | 1038                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.09                                                                              | 0.03                                                                              | 0.05                                                                              | 0.43                                                                              | 0.05                                                                              | 0.37                                                                              | 0.04                                                                               | 0.14                                                                                | 0.06                                                                                | 0.19                                                                                | 0.24                                                                                | 0.04                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)

AM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 20                                                                                | 10                                                                                | 20                                                                                | 100                                                                               | 15                                                                                | 155                                                                               | 20                                                                                  | 205                                                                                 | 60                                                                                  | 110                                                                                 | 425                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 20                                                                                | 10                                                                                | 20                                                                                | 100                                                                               | 15                                                                                | 155                                                                               | 20                                                                                  | 205                                                                                 | 60                                                                                  | 110                                                                                 | 425                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1752                                                                                | 1752                                                                                | 1752                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 133                                                                               | 20                                                                                | 128                                                                               | 27                                                                                  | 273                                                                                 | 50                                                                                  | 147                                                                                 | 567                                                                                 | 37                                                                                  |
| Peak Hour Factor             | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 222                                                                               | 232                                                                               | 197                                                                               | 244                                                                               | 234                                                                               | 198                                                                               | 589                                                                                 | 2092                                                                                | 933                                                                                 | 807                                                                                 | 2293                                                                                | 1023                                                                                |
| Arrive On Green              | 0.12                                                                              | 0.12                                                                              | 0.12                                                                              | 0.12                                                                              | 0.12                                                                              | 0.12                                                                              | 0.03                                                                                | 0.63                                                                                | 0.63                                                                                | 0.06                                                                                | 0.66                                                                                | 0.66                                                                                |
| Sat Flow, veh/h              | 1240                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 3328                                                                                | 1485                                                                                | 1739                                                                                | 3469                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 133                                                                               | 20                                                                                | 128                                                                               | 27                                                                                  | 273                                                                                 | 50                                                                                  | 147                                                                                 | 567                                                                                 | 37                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1240                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 1664                                                                                | 1485                                                                                | 1739                                                                                | 1735                                                                                | 1547                                                                                |
| Q Serve(g_s), s              | 1.8                                                                               | 0.6                                                                               | 0.9                                                                               | 8.4                                                                               | 0.8                                                                               | 6.9                                                                               | 0.5                                                                                 | 3.0                                                                                 | 1.2                                                                                 | 2.5                                                                                 | 6.0                                                                                 | 0.7                                                                                 |
| Cycle Q Clear(g_c), s        | 2.6                                                                               | 0.6                                                                               | 0.9                                                                               | 8.9                                                                               | 0.8                                                                               | 6.9                                                                               | 0.5                                                                                 | 3.0                                                                                 | 1.2                                                                                 | 2.5                                                                                 | 6.0                                                                                 | 0.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 222                                                                               | 232                                                                               | 197                                                                               | 244                                                                               | 234                                                                               | 198                                                                               | 589                                                                                 | 2092                                                                                | 933                                                                                 | 807                                                                                 | 2293                                                                                | 1023                                                                                |
| V/C Ratio(X)                 | 0.12                                                                              | 0.06                                                                              | 0.09                                                                              | 0.54                                                                              | 0.09                                                                              | 0.65                                                                              | 0.05                                                                                | 0.13                                                                                | 0.05                                                                                | 0.18                                                                                | 0.25                                                                                | 0.04                                                                                |
| Avail Cap(c_a), veh/h        | 340                                                                               | 409                                                                               | 347                                                                               | 376                                                                               | 413                                                                               | 350                                                                               | 710                                                                                 | 2092                                                                                | 933                                                                                 | 878                                                                                 | 2293                                                                                | 1023                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.1                                                                              | 34.8                                                                              | 34.9                                                                              | 38.7                                                                              | 34.9                                                                              | 37.5                                                                              | 5.3                                                                                 | 6.8                                                                                 | 6.4                                                                                 | 4.6                                                                                 | 6.2                                                                                 | 5.3                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               | 0.7                                                                               | 0.1                                                                               | 1.3                                                                               | 0.0                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.3                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.3                                                                               | 0.3                                                                               | 2.9                                                                               | 0.4                                                                               | 2.7                                                                               | 0.1                                                                                 | 1.0                                                                                 | 0.3                                                                                 | 0.7                                                                                 | 1.9                                                                                 | 0.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 36.1                                                                              | 34.8                                                                              | 35.0                                                                              | 39.4                                                                              | 34.9                                                                              | 38.8                                                                              | 5.3                                                                                 | 6.9                                                                                 | 6.5                                                                                 | 4.6                                                                                 | 6.4                                                                                 | 5.4                                                                                 |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 57                                                                                |                                                                                   |                                                                                   |                                                                                   | 281                                                                               |                                                                                   |                                                                                     |                                                                                     | 350                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 35.5                                                                              |                                                                                   |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                   |                                                                                     |                                                                                     | 6.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                 | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.4                                                                               | 65.1                                                                              | 17.5                                                                              |                                                                                   | 10.3                                                                              | 62.2                                                                              | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                             |                                                                                   | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              | * 20                                                                              |                                                                                   | 9.5                                                                               | 44.4                                                                              | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.5                                                                               | 8.0                                                                               | 4.6                                                                               |                                                                                   | 4.5                                                                               | 5.0                                                                               | 10.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 8.2                                                                               | 0.0                                                                               |                                                                                   | 0.1                                                                               | 3.9                                                                               | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 13.8

HCM 6th LOS B

### Notes

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

Lanes, Volumes, Timings  
200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

2023 Initial Build (Kwik Trip Only)

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)       | 20                                                                                | 60                                                                                | 100                                                                               | 5                                                                                 | 75                                                                                | 1                                                                                 | 100                                                                                | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Future Volume (vph)        | 20                                                                                | 60                                                                                | 100                                                                               | 5                                                                                 | 75                                                                                | 1                                                                                 | 100                                                                                | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                    | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                    | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                               | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 24                                                                                | 73                                                                                | 122                                                                               | 0                                                                                 | 98                                                                                | 0                                                                                 | 0                                                                                  | 140                                                                                 | 0                                                                                   | 0                                                                                   | 135                                                                                 | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 9                                                                                 | 15                                                                                 |                                                                                     | 60                                                                                  | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 5.7                                                                               |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL    | WBT                                                                               | WBR  | NBL    | NBT                                                                               | NBR   | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |  |  |  |        |  |      |        |  |       |        |  |       |
| Traffic Vol, veh/h       | 20                                                                                | 60                                                                                | 100                                                                               | 5      | 75                                                                                | 1    | 100    | 5                                                                                 | 10    | 1      | 15                                                                                  | 95    |
| Future Vol, veh/h        | 20                                                                                | 60                                                                                | 100                                                                               | 5      | 75                                                                                | 1    | 100    | 5                                                                                 | 10    | 1      | 15                                                                                  | 95    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0     | 0      | 0                                                                                   | 0     |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free   | Free                                                                              | Free | Stop   | Stop                                                                              | Stop  | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -      | -                                                                                 | None | -      | -                                                                                 | None  | -      | -                                                                                   | None  |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -      | -                                                                                 | -    | -      | -                                                                                 | -     | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 82                                                                                | 82                                                                                | 82                                                                                | 82     | 82                                                                                | 82   | 82     | 82                                                                                | 82    | 82     | 82                                                                                  | 82    |
| Heavy Vehicles, %        | 7                                                                                 | 7                                                                                 | 7                                                                                 | 5      | 5                                                                                 | 5    | 2      | 2                                                                                 | 2     | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 24                                                                                | 73                                                                                | 122                                                                               | 6      | 91                                                                                | 1    | 122    | 6                                                                                 | 12    | 1      | 18                                                                                  | 116   |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Major/Minor              | Major1                                                                            |                                                                                   |                                                                                   | Major2 |                                                                                   |      | Minor1 |                                                                                   |       | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 92                                                                                | 0                                                                                 | 0                                                                                 | 195    | 0                                                                                 | 0    | 292    | 225                                                                               | 73    | 295    | 347                                                                                 | 92    |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 121    | 121                                                                               | -     | 104    | 104                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 171    | 104                                                                               | -     | 191    | 243                                                                                 | -     |
| Critical Hdwy            | 4.17                                                                              | -                                                                                 | -                                                                                 | 4.15   | -                                                                                 | -    | 7.12   | 6.52                                                                              | 6.22  | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.263                                                                             | -                                                                                 | -                                                                                 | 2.245  | -                                                                                 | -    | 3.518  | 4.018                                                                             | 3.318 | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1472                                                                              | -                                                                                 | -                                                                                 | 1360   | -                                                                                 | -    | 660    | 674                                                                               | 989   | 657    | 576                                                                                 | 965   |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 883    | 796                                                                               | -     | 902    | 809                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 831    | 809                                                                               | -     | 811    | 705                                                                                 | -     |
| Platoon blocked, %       |                                                                                   | -                                                                                 | -                                                                                 |        | -                                                                                 | -    |        |                                                                                   |       |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1472                                                                              | -                                                                                 | -                                                                                 | 1360   | -                                                                                 | -    | 557    | 660                                                                               | 989   | 634    | 564                                                                                 | 965   |
| Mov Cap-2 Maneuver       | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 557    | 660                                                                               | -     | 634    | 564                                                                                 | -     |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 869    | 783                                                                               | -     | 888    | 805                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 711    | 805                                                                               | -     | 782    | 694                                                                                 | -     |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Approach                 | EB                                                                                |                                                                                   |                                                                                   | WB     |                                                                                   |      | NB     |                                                                                   |       | SB     |                                                                                     |       |
| HCM Control Delay, s     | 0.8                                                                               |                                                                                   |                                                                                   | 0.5    |                                                                                   |      | 13.1   |                                                                                   |       | 9.9    |                                                                                     |       |
| HCM LOS                  |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      | B      |                                                                                   |       | A      |                                                                                     |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBL                                                                               | EBT                                                                               | EBR    | WBL                                                                               | WBT  | WBR    | SBLn1                                                                             |       |        |                                                                                     |       |
| Capacity (veh/h)         | 583                                                                               | 1472                                                                              | -                                                                                 | -      | 1360                                                                              | -    | -      | 877                                                                               |       |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.241                                                                             | 0.017                                                                             | -                                                                                 | -      | 0.004                                                                             | -    | -      | 0.154                                                                             |       |        |                                                                                     |       |
| HCM Control Delay (s)    | 13.1                                                                              | 7.5                                                                               | -                                                                                 | -      | 7.7                                                                               | 0    | -      | 9.9                                                                               |       |        |                                                                                     |       |
| HCM Lane LOS             | B                                                                                 | A                                                                                 | -                                                                                 | -      | A                                                                                 | A    | -      | A                                                                                 |       |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 0.9                                                                               | 0.1                                                                               | -                                                                                 | -      | 0                                                                                 | -    | -      | 0.5                                                                               |       |        |                                                                                     |       |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Initial Build (Kwik Trip Only)

AM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)       | 35                                                                                | 35                                                                                | 15                                                                                | 40                                                                                | 40                                                                                | 10                                                                                |
| Future Volume (vph)        | 35                                                                                | 35                                                                                | 15                                                                                | 40                                                                                | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)            | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 86                                                                                | 0                                                                                 | 0                                                                                 | 67                                                                                | 61                                                                                | 0                                                                                 |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 60                                                                                | 60                                                                                |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 3.3                                                                               |      |        |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR  | WBL    | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |      |        |  |  |       |
| Traffic Vol, veh/h       | 35                                                                                | 35   | 15     | 40                                                                                | 40                                                                                | 10    |
| Future Vol, veh/h        | 35                                                                                | 35   | 15     | 40                                                                                | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0      | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free | Free   | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None | -      | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -    | -      | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 82                                                                                | 82   | 82     | 82                                                                                | 82                                                                                | 82    |
| Heavy Vehicles, %        | 7                                                                                 | 7    | 5      | 5                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 43                                                                                | 43   | 18     | 49                                                                                | 49                                                                                | 12    |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            |      | Major2 |                                                                                   | Minor1                                                                            |       |
| Conflicting Flow All     | 0                                                                                 | 0    | 86     | 0                                                                                 | 150                                                                               | 65    |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 65                                                                                | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 85                                                                                | -     |
| Critical Hdwy            | -                                                                                 | -    | 4.15   | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -    | 2.245  | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -    | 1492   | -                                                                                 | 842                                                                               | 999   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 958                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 938                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -    |        | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -    | 1492   | -                                                                                 | 832                                                                               | 999   |
| Mov Cap-2 Maneuver       | -                                                                                 | -    | -      | -                                                                                 | 832                                                                               | -     |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 958                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 927                                                                               | -     |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                |      | WB     |                                                                                   | NB                                                                                |       |
| HCM Control Delay, s     | 0                                                                                 |      | 2      |                                                                                   | 9.5                                                                               |       |
| HCM LOS                  |                                                                                   |      |        |                                                                                   | A                                                                                 |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT  | EBR    | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 861                                                                               | -    | -      | 1492                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.071                                                                             | -    | -      | 0.012                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 9.5                                                                               | -    | -      | 7.4                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | A                                                                                 | -    | -      | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.2                                                                               | -    | -      | 0                                                                                 | -                                                                                 |       |

Lanes, Volumes, Timings  
400: Vettelson Road & Capitol Drive

2023 Initial Build (Kwik Trip Only)  
AM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |  |
| Traffic Volume (vph)       | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 20                                                                                | 15                                                                                |
| Future Volume (vph)        | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 20                                                                                | 15                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 50                                                                                |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               | 458                                                                               |                                                                                   |
| Travel Time (s)            | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              | 12.5                                                                              |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 11%                                                                               | 11%                                                                               | 5%                                                                                | 5%                                                                                | 10%                                                                               | 10%                                                                               |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 60                                                                                | 0                                                                                 | 0                                                                                 | 67                                                                                | 27                                                                                | 20                                                                                |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.3                                                                               |       |        |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBT                                                                               | EBR   | WBL    | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations      |  |       |        |  |  |  |
| Traffic Vol, veh/h       | 35                                                                                | 10    | 15     | 35                                                                                | 20                                                                                | 15                                                                                |
| Future Vol, veh/h        | 35                                                                                | 10    | 15     | 35                                                                                | 20                                                                                | 15                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0     | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free  | Free   | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None  | -      | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | -                                                                                 | -     | -      | -                                                                                 | 0                                                                                 | 50                                                                                |
| Veh in Median Storage, # | 0                                                                                 | -     | -      | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -     | -      | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 75                                                                                | 75    | 75     | 75                                                                                | 75                                                                                | 75                                                                                |
| Heavy Vehicles, %        | 11                                                                                | 11    | 5      | 5                                                                                 | 10                                                                                | 10                                                                                |
| Mvmt Flow                | 47                                                                                | 13    | 20     | 47                                                                                | 27                                                                                | 20                                                                                |
|                          |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
| Major/Minor              | Major1                                                                            |       | Major2 |                                                                                   | Minor1                                                                            |                                                                                   |
| Conflicting Flow All     | 0                                                                                 | 0     | 60     | 0                                                                                 | 141                                                                               | 54                                                                                |
| Stage 1                  | -                                                                                 | -     | -      | -                                                                                 | 54                                                                                | -                                                                                 |
| Stage 2                  | -                                                                                 | -     | -      | -                                                                                 | 87                                                                                | -                                                                                 |
| Critical Hdwy            | -                                                                                 | -     | 4.15   | -                                                                                 | 6.5                                                                               | 6.3                                                                               |
| Critical Hdwy Stg 1      | -                                                                                 | -     | -      | -                                                                                 | 5.5                                                                               | -                                                                                 |
| Critical Hdwy Stg 2      | -                                                                                 | -     | -      | -                                                                                 | 5.5                                                                               | -                                                                                 |
| Follow-up Hdwy           | -                                                                                 | -     | 2.245  | -                                                                                 | 3.59                                                                              | 3.39                                                                              |
| Pot Cap-1 Maneuver       | -                                                                                 | -     | 1525   | -                                                                                 | 833                                                                               | 991                                                                               |
| Stage 1                  | -                                                                                 | -     | -      | -                                                                                 | 948                                                                               | -                                                                                 |
| Stage 2                  | -                                                                                 | -     | -      | -                                                                                 | 917                                                                               | -                                                                                 |
| Platoon blocked, %       | -                                                                                 | -     |        | -                                                                                 |                                                                                   |                                                                                   |
| Mov Cap-1 Maneuver       | -                                                                                 | -     | 1525   | -                                                                                 | 822                                                                               | 991                                                                               |
| Mov Cap-2 Maneuver       | -                                                                                 | -     | -      | -                                                                                 | 822                                                                               | -                                                                                 |
| Stage 1                  | -                                                                                 | -     | -      | -                                                                                 | 948                                                                               | -                                                                                 |
| Stage 2                  | -                                                                                 | -     | -      | -                                                                                 | 905                                                                               | -                                                                                 |
|                          |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
|                          |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
| Approach                 | EB                                                                                |       | WB     |                                                                                   | NB                                                                                |                                                                                   |
| HCM Control Delay, s     | 0                                                                                 |       | 2.2    |                                                                                   | 9.2                                                                               |                                                                                   |
| HCM LOS                  |                                                                                   |       |        |                                                                                   | A                                                                                 |                                                                                   |
|                          |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
|                          |                                                                                   |       |        |                                                                                   |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | NBLn2 | EBT    | EBR                                                                               | WBL                                                                               | WBT                                                                               |
| Capacity (veh/h)         | 822                                                                               | 991   | -      | -                                                                                 | 1525                                                                              | -                                                                                 |
| HCM Lane V/C Ratio       | 0.032                                                                             | 0.02  | -      | -                                                                                 | 0.013                                                                             | -                                                                                 |
| HCM Control Delay (s)    | 9.5                                                                               | 8.7   | -      | -                                                                                 | 7.4                                                                               | 0                                                                                 |
| HCM Lane LOS             | A                                                                                 | A     | -      | -                                                                                 | A                                                                                 | A                                                                                 |
| HCM 95th %tile Q(veh)    | 0.1                                                                               | 0.1   | -      | -                                                                                 | 0                                                                                 | -                                                                                 |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-----|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |     |
| Lane Configurations        |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
| Traffic Volume (vph)       | 95                                                                                | 30                                                                                | 35                                                                                | 70                                                                                | 20                                                                                | 145                                                                               | 50                                                                                  | 625                                                                                 | 125                                                                                 | 145                                                                                 | 365                                                                                 | 105                                                                                 |      |     |
| Future Volume (vph)        | 95                                                                                | 30                                                                                | 35                                                                                | 70                                                                                | 20                                                                                | 145                                                                               | 50                                                                                  | 625                                                                                 | 125                                                                                 | 145                                                                                 | 365                                                                                 | 105                                                                                 |      |     |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |     |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |      |     |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Storage Length (ft)        | 330                                                                               |                                                                                   |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   |                                                                                     | 135                                                                                 | 335                                                                                 |                                                                                     |                                                                                     | 150                                                                                 | 200  | 305 |
| Storage Lanes              | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     |                                                                                     | 1                                                                                   | 1    | 1   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |                                                                                     | 100                                                                                 |      |     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |      |     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     |                                                                                     |                                                                                     | 35   |     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     |                                                                                     |                                                                                     | 633  |     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     |                                                                                     |                                                                                     | 12.3 |     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| 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                                                                                |      |     |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |      |     |
| Heavy Vehicles (%)         | 1%                                                                                | 1%                                                                                | 1%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                  | 1%                                                                                  | 1%                                                                                  | 3%                                                                                  | 3%                                                                                  | 3%                                                                                  |      |     |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |      |     |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Lane Group Flow (vph)      | 100                                                                               | 32                                                                                | 23                                                                                | 74                                                                                | 21                                                                                | 95                                                                                | 53                                                                                  | 658                                                                                 | 82                                                                                  | 153                                                                                 | 384                                                                                 | 69                                                                                  |      |     |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |      |     |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |      |     |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |      |     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |     |
| Turning Speed (mph)        | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                  | 9                                                                                   |                                                                                     | 15                                                                                  | 9                                                                                   |                                                                                     |      |     |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |      |     |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     | 2    |     |
| Permitted Phases           | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 2                                                                                   | 2                                                                                   |                                                                                     |      |     |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |      |     |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |      |     |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |      |     |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |      |     |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |      |     |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |      |     |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |      |     |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |     |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |      |     |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |      |     |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |      |     |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)  
PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                                | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.55                                                                              | 0.13                                                                              | 0.11                                                                              | 0.42                                                                              | 0.09                                                                              | 0.47                                                                              | 0.07                                                                                | 0.28                                                                                | 0.08                                                                                | 0.26                                                                                | 0.15                                                                                | 0.06                                                                                |
| Control Delay           | 48.3                                                                              | 34.9                                                                              | 34.7                                                                              | 42.9                                                                              | 34.0                                                                              | 43.5                                                                              | 3.7                                                                                 | 8.3                                                                                 | 8.0                                                                                 | 4.4                                                                                 | 6.4                                                                                 | 7.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 48.3                                                                              | 34.9                                                                              | 34.7                                                                              | 42.9                                                                              | 34.0                                                                              | 43.5                                                                              | 3.7                                                                                 | 8.3                                                                                 | 8.0                                                                                 | 4.4                                                                                 | 6.4                                                                                 | 7.1                                                                                 |
| Queue Length 50th (ft)  | 55                                                                                | 17                                                                                | 12                                                                                | 40                                                                                | 11                                                                                | 52                                                                                | 6                                                                                   | 78                                                                                  | 16                                                                                  | 18                                                                                  | 42                                                                                  | 13                                                                                  |
| Queue Length 95th (ft)  | 101                                                                               | 41                                                                                | 33                                                                                | 78                                                                                | 31                                                                                | 94                                                                                | 18                                                                                  | 136                                                                                 | 42                                                                                  | 42                                                                                  | 72                                                                                  | 34                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                     | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 306                                                                               | 411                                                                               | 350                                                                               | 300                                                                               | 407                                                                               | 346                                                                               | 842                                                                                 | 2326                                                                                | 1040                                                                                | 641                                                                                 | 2513                                                                                | 1124                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.33                                                                              | 0.08                                                                              | 0.07                                                                              | 0.25                                                                              | 0.05                                                                              | 0.27                                                                              | 0.06                                                                                | 0.28                                                                                | 0.08                                                                                | 0.24                                                                                | 0.15                                                                                | 0.06                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Initial Build (Kwik Trip Only)

PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |    |  |  |  |  |  |
| Traffic Volume (veh/h)       | 95                                                                                | 30                                                                                | 35                                                                                | 70                                                                                | 20                                                                                | 145                                                                               | 50                                                                                  | 625                                                                                 | 125                                                                                 | 145                                                                                 | 365                                                                                 | 105                                                                                 |
| Future Volume (veh/h)        | 95                                                                                | 30                                                                                | 35                                                                                | 70                                                                                | 20                                                                                | 145                                                                               | 50                                                                                  | 625                                                                                 | 125                                                                                 | 145                                                                                 | 365                                                                                 | 105                                                                                 |
| 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                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 100                                                                               | 32                                                                                | 23                                                                                | 74                                                                                | 21                                                                                | 95                                                                                | 53                                                                                  | 658                                                                                 | 82                                                                                  | 153                                                                                 | 384                                                                                 | 69                                                                                  |
| 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                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 210                                                                               | 209                                                                               | 177                                                                               | 209                                                                               | 208                                                                               | 176                                                                               | 750                                                                                 | 2298                                                                                | 1025                                                                                | 595                                                                                 | 2319                                                                                | 1034                                                                                |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.05                                                                                | 0.64                                                                                | 0.64                                                                                | 0.07                                                                                | 0.66                                                                                | 0.66                                                                                |
| Sat Flow, veh/h              | 1286                                                                              | 1885                                                                              | 1598                                                                              | 1349                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 3582                                                                                | 1598                                                                                | 1767                                                                                | 3526                                                                                | 1572                                                                                |
| Grp Volume(v), veh/h         | 100                                                                               | 32                                                                                | 23                                                                                | 74                                                                                | 21                                                                                | 95                                                                                | 53                                                                                  | 658                                                                                 | 82                                                                                  | 153                                                                                 | 384                                                                                 | 69                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1286                                                                              | 1885                                                                              | 1598                                                                              | 1349                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 1791                                                                                | 1598                                                                                | 1767                                                                                | 1763                                                                                | 1572                                                                                |
| Q Serve(g_s), s              | 6.8                                                                               | 1.4                                                                               | 1.2                                                                               | 4.7                                                                               | 0.9                                                                               | 5.1                                                                               | 0.8                                                                                 | 7.3                                                                                 | 1.7                                                                                 | 2.5                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Cycle Q Clear(g_c), s        | 7.7                                                                               | 1.4                                                                               | 1.2                                                                               | 6.1                                                                               | 0.9                                                                               | 5.1                                                                               | 0.8                                                                                 | 7.3                                                                                 | 1.7                                                                                 | 2.5                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 210                                                                               | 209                                                                               | 177                                                                               | 209                                                                               | 208                                                                               | 176                                                                               | 750                                                                                 | 2298                                                                                | 1025                                                                                | 595                                                                                 | 2319                                                                                | 1034                                                                                |
| V/C Ratio(X)                 | 0.48                                                                              | 0.15                                                                              | 0.13                                                                              | 0.35                                                                              | 0.10                                                                              | 0.54                                                                              | 0.07                                                                                | 0.29                                                                                | 0.08                                                                                | 0.26                                                                                | 0.17                                                                                | 0.07                                                                                |
| Avail Cap(c_a), veh/h        | 349                                                                               | 413                                                                               | 350                                                                               | 355                                                                               | 409                                                                               | 347                                                                               | 852                                                                                 | 2298                                                                                | 1025                                                                                | 666                                                                                 | 2319                                                                                | 1034                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 39.4                                                                              | 36.2                                                                              | 36.1                                                                              | 38.9                                                                              | 36.0                                                                              | 37.8                                                                              | 4.5                                                                                 | 7.1                                                                                 | 6.1                                                                                 | 4.6                                                                                 | 5.9                                                                                 | 5.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.1                                                                               | 1.0                                                                               | 0.0                                                                                 | 0.3                                                                                 | 0.2                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.2                                                                               | 0.6                                                                               | 0.5                                                                               | 1.6                                                                               | 0.4                                                                               | 2.0                                                                               | 0.3                                                                                 | 2.5                                                                                 | 0.5                                                                                 | 0.7                                                                                 | 1.2                                                                                 | 0.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 40.1                                                                              | 36.3                                                                              | 36.2                                                                              | 39.3                                                                              | 36.0                                                                              | 38.8                                                                              | 4.5                                                                                 | 7.4                                                                                 | 6.2                                                                                 | 4.7                                                                                 | 6.1                                                                                 | 5.6                                                                                 |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 155                                                                               |                                                                                   |                                                                                   | 190                                                                               |                                                                                   |                                                                                   | 793                                                                                 |                                                                                     |                                                                                     | 606                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 38.7                                                                              |                                                                                   |                                                                                   | 38.7                                                                              |                                                                                   |                                                                                   | 7.1                                                                                 |                                                                                     |                                                                                     | 5.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.9                                                                               | 64.8                                                                              |                                                                                   | 16.3                                                                              | 10.4                                                                              | 63.3                                                                              |                                                                                     | 16.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               |                                                                                   | * 6.3                                                                             | 4.5                                                                               | 5.6                                                                               |                                                                                     | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              |                                                                                   | * 20                                                                              | 9.5                                                                               | 44.4                                                                              |                                                                                     | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.8                                                                               | 5.8                                                                               |                                                                                   | 9.7                                                                               | 4.5                                                                               | 9.3                                                                               |                                                                                     | 8.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 5.6                                                                               |                                                                                   | 0.1                                                                               | 0.1                                                                               | 10.0                                                                              |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 12.8

HCM 6th LOS B

### Notes

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

Lanes, Volumes, Timings  
200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

2023 Initial Build (Kwik Trip Only)

PM Peak Hour

|                             |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                  | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations         |  |  |  |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)        | 100                                                                               | 95                                                                                | 105                                                                               | 5                                                                                 | 85                                                                                | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Future Volume (vph)         | 100                                                                               | 95                                                                                | 105                                                                               | 5                                                                                 | 85                                                                                | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Ideal Flow (vphpl)          | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)             | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)         | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes               | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)           | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)            |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)          |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                    | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)             |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                    | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor            | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Growth Factor               | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)          | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)        | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)       |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)       | 111                                                                               | 106                                                                               | 117                                                                               | 0                                                                                 | 106                                                                               | 0                                                                                 | 0                                                                                  | 128                                                                                 | 0                                                                                   | 0                                                                                   | 83                                                                                  | 0                                                                                   |
| Enter Blocked Intersection  | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment              | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)            |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)             |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)         |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)         | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                 |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control                |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| <b>Intersection Summary</b> |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                  | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:               | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 5.8                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |  |      |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 100                                                                               | 95                                                                                | 105                                                                               | 5    | 85                                                                                | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Future Vol, veh/h        | 100                                                                               | 95                                                                                | 105                                                                               | 5    | 85                                                                                | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -    | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -    | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 90                                                                                | 90                                                                                | 90                                                                                | 90   | 90                                                                                | 90   | 90   | 90                                                                                | 90   | 90   | 90                                                                                  | 90   |
| Heavy Vehicles, %        | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2    | 2                                                                                 | 2    | 2    | 2                                                                                 | 2    | 2    | 2                                                                                   | 2    |
| Mvmt Flow                | 111                                                                               | 106                                                                               | 117                                                                               | 6    | 94                                                                                | 6    | 106  | 11                                                                                | 11   | 11   | 11                                                                                  | 61   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 100    | 0 | 0 | 223    | 0 | 0 | 473    | 440   | 106   | 507    | 554   | 97    |
| Stage 1              | -      | - | - | -      | - | - | 328    | 328   | -     | 109    | 109   | -     |
| Stage 2              | -      | - | - | -      | - | - | 145    | 112   | -     | 398    | 445   | -     |
| Critical Hdwy        | 4.15   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.245  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1474   | - | - | 1346   | - | - | 501    | 511   | 948   | 476    | 440   | 959   |
| Stage 1              | -      | - | - | -      | - | - | 685    | 647   | -     | 896    | 805   | -     |
| Stage 2              | -      | - | - | -      | - | - | 858    | 803   | -     | 628    | 575   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1474   | - | - | 1346   | - | - | 431    | 470   | 948   | 434    | 405   | 959   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 431    | 470   | -     | 434    | 405   | -     |
| Stage 1              | -      | - | - | -      | - | - | 634    | 598   | -     | 829    | 801   | -     |
| Stage 2              | -      | - | - | -      | - | - | 788    | 799   | -     | 563    | 532   | -     |

| Approach             | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|----------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s | 2.5 |  |  | 0.4 |  |  | 15.9 |  |  | 10.7 |  |  |
| HCM LOS              |     |  |  |     |  |  | C    |  |  | B    |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 456   | 1474  | -   | -   | 1346  | -   | -   | 714   |
| HCM Lane V/C Ratio    | 0.28  | 0.075 | -   | -   | 0.004 | -   | -   | 0.117 |
| HCM Control Delay (s) | 15.9  | 7.6   | -   | -   | 7.7   | 0   | -   | 10.7  |
| HCM Lane LOS          | C     | A     | -   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 1.1   | 0.2   | -   | -   | 0     | -   | -   | 0.4   |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Initial Build (Kwik Trip Only)

PM Peak Hour

|                             |  |  |  |  |  |  |
|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                  | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations         |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)        | 80                                                                                | 35                                                                                | 15                                                                                | 55                                                                                | 40                                                                                | 10                                                                                |
| Future Volume (vph)         | 80                                                                                | 35                                                                                | 15                                                                                | 55                                                                                | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)          | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)             | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)         |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes               |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)           |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)            | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)          | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)             | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor            | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              |
| Growth Factor               | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)          | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)        | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)       | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)       | 128                                                                               | 0                                                                                 | 0                                                                                 | 78                                                                                | 55                                                                                | 0                                                                                 |
| Enter Blocked Intersection  | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)             | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)         | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)         |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control                | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| <b>Intersection Summary</b> |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                  | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:               | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 2.6                                                                               |        |        |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR    | WBL    | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |        |        |  |  |       |
| Traffic Vol, veh/h       | 80                                                                                | 35     | 15     | 55                                                                                | 40                                                                                | 10    |
| Future Vol, veh/h        | 80                                                                                | 35     | 15     | 55                                                                                | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free   | Free   | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -      | -      | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 90                                                                                | 90     | 90     | 90                                                                                | 90                                                                                | 90    |
| Heavy Vehicles, %        | 5                                                                                 | 5      | 2      | 2                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 89                                                                                | 39     | 17     | 61                                                                                | 44                                                                                | 11    |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            | Major2 | Minor1 |                                                                                   |                                                                                   |       |
| Conflicting Flow All     | 0                                                                                 | 0      | 128    | 0                                                                                 | 204                                                                               | 109   |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 109                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 95                                                                                | -     |
| Critical Hdwy            | -                                                                                 | -      | 4.12   | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -      | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -      | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218  | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1458   | -                                                                                 | 784                                                                               | 945   |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 916                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 929                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -      |        | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1458   | -                                                                                 | 775                                                                               | 945   |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -      | -                                                                                 | 775                                                                               | -     |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 916                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 918                                                                               | -     |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                | WB     |        | NB                                                                                |                                                                                   |       |
| HCM Control Delay, s     | 0                                                                                 | 1.6    |        | 9.8                                                                               |                                                                                   |       |
| HCM LOS                  | A                                                                                 |        |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT    | EBR    | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 804                                                                               | -      | -      | 1458                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.069                                                                             | -      | -      | 0.011                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 9.8                                                                               | -      | -      | 7.5                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | A                                                                                 | -      | -      | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.2                                                                               | -      | -      | 0                                                                                 | -                                                                                 |       |

Lanes, Volumes, Timings  
400: Vettelson Road & Capitol Drive

2023 Initial Build (Kwik Trip Only)  
PM Peak Hour

|                            | →            | ↘     | ↙    | ←    | ↖    | ↗     |
|----------------------------|--------------|-------|------|------|------|-------|
| Lane Group                 | EBT          | EBR   | WBL  | WBT  | NBL  | NBR   |
| Lane Configurations        | ↰            |       |      | ↱    | ↱    | ↱     |
| Traffic Volume (vph)       | 75           | 15    | 20   | 50   | 20   | 20    |
| Future Volume (vph)        | 75           | 15    | 20   | 50   | 20   | 20    |
| Ideal Flow (vphpl)         | 1900         | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Width (ft)            | 12           | 12    | 12   | 12   | 12   | 12    |
| Grade (%)                  | 0%           |       |      | 0%   | 0%   |       |
| Storage Length (ft)        |              | 0     | 0    |      | 0    | 50    |
| Storage Lanes              |              | 0     | 0    |      | 1    | 1     |
| Taper Length (ft)          |              |       | 100  |      | 100  |       |
| Link Speed (mph)           | 25           |       |      | 25   | 25   |       |
| Link Distance (ft)         | 477          |       |      | 924  | 458  |       |
| Travel Time (s)            | 13.0         |       |      | 25.2 | 12.5 |       |
| Confl. Peds. (#/hr)        |              |       |      |      |      |       |
| Confl. Bikes (#/hr)        |              |       |      |      |      |       |
| Peak Hour Factor           | 0.83         | 0.83  | 0.83 | 0.83 | 0.83 | 0.83  |
| Growth Factor              | 100%         | 100%  | 100% | 100% | 100% | 100%  |
| Heavy Vehicles (%)         | 6%           | 6%    | 1%   | 1%   | 1%   | 1%    |
| Bus Blockages (#/hr)       | 0            | 0     | 0    | 0    | 0    | 0     |
| Parking (#/hr)             |              |       |      |      |      |       |
| Mid-Block Traffic (%)      | 0%           |       |      | 0%   | 0%   |       |
| Shared Lane Traffic (%)    |              |       |      |      |      |       |
| Lane Group Flow (vph)      | 108          | 0     | 0    | 84   | 24   | 24    |
| Enter Blocked Intersection | No           | No    | No   | No   | No   | No    |
| Lane Alignment             | Left         | Right | Left | Left | Left | Right |
| Median Width(ft)           | 0            |       |      | 0    | 12   |       |
| Link Offset(ft)            | 0            |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16           |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |              |       |      |      |      |       |
| Headway Factor             | 1.00         | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |              | 9     | 15   |      | 15   | 9     |
| Sign Control               | Free         |       |      | Free | Stop |       |
| Intersection Summary       |              |       |      |      |      |       |
| Area Type:                 | Other        |       |      |      |      |       |
| Control Type:              | Unsignalized |       |      |      |      |       |

| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 2.6                                                                               |        |        |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBT                                                                               | EBR    | WBL    | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations      |  |        |        |  |  |  |
| Traffic Vol, veh/h       | 75                                                                                | 15     | 20     | 50                                                                                | 20                                                                                | 20                                                                                |
| Future Vol, veh/h        | 75                                                                                | 15     | 20     | 50                                                                                | 20                                                                                | 20                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free   | Free   | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | -                                                                                 | -      | -      | -                                                                                 | 0                                                                                 | 50                                                                                |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 83                                                                                | 83     | 83     | 83                                                                                | 83                                                                                | 83                                                                                |
| Heavy Vehicles, %        | 6                                                                                 | 6      | 1      | 1                                                                                 | 1                                                                                 | 1                                                                                 |
| Mvmt Flow                | 90                                                                                | 18     | 24     | 60                                                                                | 24                                                                                | 24                                                                                |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |                                                                                   |
| Major/Minor              | Major1                                                                            | Major2 | Minor1 |                                                                                   |                                                                                   |                                                                                   |
| Conflicting Flow All     | 0                                                                                 | 0      | 108    | 0                                                                                 | 207                                                                               | 99                                                                                |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 99                                                                                | -                                                                                 |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 108                                                                               | -                                                                                 |
| Critical Hdwy            | -                                                                                 | -      | 4.11   | -                                                                                 | 6.41                                                                              | 6.21                                                                              |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -      | -                                                                                 | 5.41                                                                              | -                                                                                 |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -      | -                                                                                 | 5.41                                                                              | -                                                                                 |
| Follow-up Hdwy           | -                                                                                 | -      | 2.209  | -                                                                                 | 3.509                                                                             | 3.309                                                                             |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1489   | -                                                                                 | 784                                                                               | 960                                                                               |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 927                                                                               | -                                                                                 |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 919                                                                               | -                                                                                 |
| Platoon blocked, %       | -                                                                                 | -      |        | -                                                                                 |                                                                                   |                                                                                   |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1489   | -                                                                                 | 771                                                                               | 960                                                                               |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -      | -                                                                                 | 771                                                                               | -                                                                                 |
| Stage 1                  | -                                                                                 | -      | -      | -                                                                                 | 927                                                                               | -                                                                                 |
| Stage 2                  | -                                                                                 | -      | -      | -                                                                                 | 903                                                                               | -                                                                                 |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |                                                                                   |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |                                                                                   |
| Approach                 | EB                                                                                | WB     |        | NB                                                                                |                                                                                   |                                                                                   |
| HCM Control Delay, s     | 0                                                                                 | 2.1    |        | 9.3                                                                               |                                                                                   |                                                                                   |
| HCM LOS                  | A                                                                                 |        |        |                                                                                   |                                                                                   |                                                                                   |
|                          |                                                                                   |        |        |                                                                                   |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | NBLn2  | EBT    | EBR                                                                               | WBL                                                                               | WBT                                                                               |
| Capacity (veh/h)         | 771                                                                               | 960    | -      | -                                                                                 | 1489                                                                              | -                                                                                 |
| HCM Lane V/C Ratio       | 0.031                                                                             | 0.025  | -      | -                                                                                 | 0.016                                                                             | -                                                                                 |
| HCM Control Delay (s)    | 9.8                                                                               | 8.8    | -      | -                                                                                 | 7.5                                                                               | 0                                                                                 |
| HCM Lane LOS             | A                                                                                 | A      | -      | -                                                                                 | A                                                                                 | A                                                                                 |
| HCM 95th %tile Q(veh)    | 0.1                                                                               | 0.1    | -      | -                                                                                 | 0                                                                                 | -                                                                                 |

# **APPENDIX C**

## **Year 2023 Build Traffic Operational Analysis**

### **Interim Buildout – Kwik Trip + 400 Apartment Units**

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-----|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |     |
| Lane Configurations        |  |  |  |  |  |  |   |  |  |  |  |  |      |     |
| Traffic Volume (vph)       | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 205                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 125                                                                                 | 425                                                                                 | 45                                                                                  |      |     |
| Future Volume (vph)        | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 205                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 125                                                                                 | 425                                                                                 | 45                                                                                  |      |     |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |     |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |      |     |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Storage Length (ft)        | 330                                                                               |                                                                                   |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   |                                                                                     | 135                                                                                 | 335                                                                                 |                                                                                     |                                                                                     | 150                                                                                 | 200  | 305 |
| Storage Lanes              | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     |                                                                                     | 1                                                                                   | 1    | 1   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |                                                                                     | 100                                                                                 |      |     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     |                                                                                     | No                                                                                  |                                                                                     | No   |     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     |                                                                                     |                                                                                     | 35   |     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     |                                                                                     |                                                                                     | 633  |     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     |                                                                                     |                                                                                     | 12.3 |     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |      |     |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |      |     |
| Heavy Vehicles (%)         | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 10%                                                                                 | 10%                                                                                 | 10%                                                                                 | 5%                                                                                  | 5%                                                                                  | 5%                                                                                  |      |     |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |      |     |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Lane Group Flow (vph)      | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 169                                                                               | 27                                                                                  | 273                                                                                 | 58                                                                                  | 167                                                                                 | 567                                                                                 | 37                                                                                  |      |     |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |      |     |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |      |     |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |      |     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |     |
| Turning Speed (mph)        | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                  | 9                                                                                   |                                                                                     | 15                                                                                  | 9                                                                                   |                                                                                     |      |     |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |      |     |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     |      |     |
| Permitted Phases           | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 2                                                                                   | 2                                                                                   |                                                                                     |      |     |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |      |     |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |      |     |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |      |     |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |      |     |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |      |     |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |      |     |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |      |     |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |     |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |      |     |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |      |     |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |      |     |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                                | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.12                                                                              | 0.04                                                                              | 0.07                                                                              | 0.74                                                                              | 0.09                                                                              | 0.64                                                                              | 0.05                                                                                | 0.15                                                                                | 0.07                                                                                | 0.22                                                                                | 0.25                                                                                | 0.04                                                                                |
| Control Delay           | 31.1                                                                              | 29.4                                                                              | 29.9                                                                              | 54.5                                                                              | 30.4                                                                              | 45.8                                                                              | 5.2                                                                                 | 10.2                                                                                | 10.6                                                                                | 5.5                                                                                 | 8.1                                                                                 | 8.3                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 31.1                                                                              | 29.4                                                                              | 29.9                                                                              | 54.5                                                                              | 30.4                                                                              | 45.8                                                                              | 5.2                                                                                 | 10.2                                                                                | 10.6                                                                                | 5.5                                                                                 | 8.1                                                                                 | 8.3                                                                                 |
| Queue Length 50th (ft)  | 13                                                                                | 6                                                                                 | 8                                                                                 | 95                                                                                | 13                                                                                | 91                                                                                | 4                                                                                   | 34                                                                                  | 13                                                                                  | 25                                                                                  | 51                                                                                  | 6                                                                                   |
| Queue Length 95th (ft)  | 28                                                                                | 17                                                                                | 21                                                                                | 125                                                                               | 28                                                                                | 119                                                                               | 11                                                                                  | 53                                                                                  | 31                                                                                  | 44                                                                                  | 97                                                                                  | 20                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                     | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 301                                                                               | 407                                                                               | 346                                                                               | 308                                                                               | 411                                                                               | 350                                                                               | 616                                                                                 | 1878                                                                                | 840                                                                                 | 769                                                                                 | 2254                                                                                | 1008                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.09                                                                              | 0.03                                                                              | 0.05                                                                              | 0.56                                                                              | 0.07                                                                              | 0.48                                                                              | 0.04                                                                                | 0.15                                                                                | 0.07                                                                                | 0.22                                                                                | 0.25                                                                                | 0.04                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

AM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 205                                                                               | 20                                                                                 | 205                                                                                 | 70                                                                                  | 125                                                                                 | 425                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 205                                                                               | 20                                                                                 | 205                                                                                 | 70                                                                                  | 125                                                                                 | 425                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1752                                                                               | 1752                                                                                | 1752                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 169                                                                               | 27                                                                                 | 273                                                                                 | 58                                                                                  | 167                                                                                 | 567                                                                                 | 37                                                                                  |
| Peak Hour Factor             | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                               | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 10                                                                                 | 10                                                                                  | 10                                                                                  | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 246                                                                               | 285                                                                               | 242                                                                               | 284                                                                               | 287                                                                               | 244                                                                               | 563                                                                                | 1996                                                                                | 890                                                                                 | 772                                                                                 | 2195                                                                                | 979                                                                                 |
| Arrive On Green              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.03                                                                               | 0.60                                                                                | 0.60                                                                                | 0.07                                                                                | 0.63                                                                                | 0.63                                                                                |
| Sat Flow, veh/h              | 1187                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                               | 3328                                                                                | 1485                                                                                | 1739                                                                                | 3469                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 169                                                                               | 27                                                                                 | 273                                                                                 | 58                                                                                  | 167                                                                                 | 567                                                                                 | 37                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1187                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                               | 1664                                                                                | 1485                                                                                | 1739                                                                                | 1735                                                                                | 1547                                                                                |
| Q Serve(g_s), s              | 1.8                                                                               | 0.5                                                                               | 0.8                                                                               | 10.9                                                                              | 1.1                                                                               | 9.0                                                                               | 0.5                                                                                | 3.2                                                                                 | 1.5                                                                                 | 3.2                                                                                 | 6.5                                                                                 | 0.8                                                                                 |
| Cycle Q Clear(g_c), s        | 2.9                                                                               | 0.5                                                                               | 0.8                                                                               | 11.4                                                                              | 1.1                                                                               | 9.0                                                                               | 0.5                                                                                | 3.2                                                                                 | 1.5                                                                                 | 3.2                                                                                 | 6.5                                                                                 | 0.8                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 246                                                                               | 285                                                                               | 242                                                                               | 284                                                                               | 287                                                                               | 244                                                                               | 563                                                                                | 1996                                                                                | 890                                                                                 | 772                                                                                 | 2195                                                                                | 979                                                                                 |
| V/C Ratio(X)                 | 0.11                                                                              | 0.05                                                                              | 0.07                                                                              | 0.61                                                                              | 0.09                                                                              | 0.69                                                                              | 0.05                                                                               | 0.14                                                                                | 0.07                                                                                | 0.22                                                                                | 0.26                                                                                | 0.04                                                                                |
| Avail Cap(c_a), veh/h        | 325                                                                               | 409                                                                               | 347                                                                               | 376                                                                               | 413                                                                               | 350                                                                               | 685                                                                                | 1996                                                                                | 890                                                                                 | 841                                                                                 | 2195                                                                                | 979                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 34.0                                                                              | 32.6                                                                              | 32.7                                                                              | 37.4                                                                              | 32.8                                                                              | 36.2                                                                              | 6.3                                                                                | 7.9                                                                                 | 7.5                                                                                 | 5.5                                                                                 | 7.3                                                                                 | 6.2                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.8                                                                               | 0.1                                                                               | 1.3                                                                               | 0.0                                                                                | 0.1                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 0.3                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.2                                                                               | 0.3                                                                               | 3.8                                                                               | 0.5                                                                               | 3.6                                                                               | 0.2                                                                                | 1.1                                                                                 | 0.5                                                                                 | 0.9                                                                                 | 2.1                                                                                 | 0.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 34.1                                                                              | 32.6                                                                              | 32.7                                                                              | 38.2                                                                              | 32.8                                                                              | 37.5                                                                              | 6.3                                                                                | 8.0                                                                                 | 7.6                                                                                 | 5.5                                                                                 | 7.5                                                                                 | 6.3                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | A                                                                                  | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 57                                                                                |                                                                                   |                                                                                   |                                                                                   | 369                                                                               |                                                                                   |                                                                                    |                                                                                     | 358                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 33.4                                                                              |                                                                                   |                                                                                   |                                                                                   | 37.5                                                                              |                                                                                   |                                                                                    |                                                                                     | 7.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.4                                                                               | 62.5                                                                              |                                                                                   | 20.0                                                                              | 10.4                                                                              | 59.6                                                                              |                                                                                    | 20.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               |                                                                                   | * 6.3                                                                             | 4.5                                                                               | 5.6                                                                               |                                                                                    | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              |                                                                                   | * 20                                                                              | 9.5                                                                               | 44.4                                                                              |                                                                                    | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.5                                                                               | 8.5                                                                               |                                                                                   | 4.9                                                                               | 5.2                                                                               | 5.2                                                                               |                                                                                    | 13.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 8.1                                                                               |                                                                                   | 0.0                                                                               | 0.1                                                                               | 3.9                                                                               |                                                                                    | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 15.4

HCM 6th LOS B

### Notes

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

Lanes, Volumes, Timings

2023 Interim Build (Kwik Trip + 400 MF Units)

200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)       | 20                                                                                | 85                                                                                | 100                                                                               | 5                                                                                 | 160                                                                               | 1                                                                                 | 100                                                                                | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Future Volume (vph)        | 20                                                                                | 85                                                                                | 100                                                                               | 5                                                                                 | 160                                                                               | 1                                                                                 | 100                                                                                | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                    | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                    | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                               | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 24                                                                                | 104                                                                               | 122                                                                               | 0                                                                                 | 202                                                                               | 0                                                                                 | 0                                                                                  | 140                                                                                 | 0                                                                                   | 0                                                                                   | 135                                                                                 | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 9                                                                                 | 60                                                                                 |                                                                                     | 60                                                                                  | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection

Int Delay, s/veh 5.4

| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Lane Configurations      |  |  |  |      |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 20                                                                                | 85                                                                                | 100                                                                               | 5    | 160                                                                               | 1    | 100  | 5                                                                                 | 10   | 1    | 15                                                                                  | 95   |
| Future Vol, veh/h        | 20                                                                                | 85                                                                                | 100                                                                               | 5    | 160                                                                               | 1    | 100  | 5                                                                                 | 10   | 1    | 15                                                                                  | 95   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -    | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -    | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 82                                                                                | 82                                                                                | 82                                                                                | 82   | 82                                                                                | 82   | 82   | 82                                                                                | 82   | 82   | 82                                                                                  | 82   |
| Heavy Vehicles, %        | 7                                                                                 | 7                                                                                 | 7                                                                                 | 5    | 5                                                                                 | 5    | 2    | 2                                                                                 | 2    | 2    | 2                                                                                   | 2    |
| Mvmt Flow                | 24                                                                                | 104                                                                               | 122                                                                               | 6    | 195                                                                               | 1    | 122  | 6                                                                                 | 12   | 1    | 18                                                                                  | 116  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 196    | 0 | 0 | 226    | 0 | 0 | 427    | 360   | 104   | 430    | 482   | 196   |
| Stage 1              | -      | - | - | -      | - | - | 152    | 152   | -     | 208    | 208   | -     |
| Stage 2              | -      | - | - | -      | - | - | 275    | 208   | -     | 222    | 274   | -     |
| Critical Hdwy        | 4.17   | - | - | 4.15   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.263  | - | - | 2.245  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1347   | - | - | 1325   | - | - | 538    | 567   | 951   | 535    | 484   | 845   |
| Stage 1              | -      | - | - | -      | - | - | 850    | 772   | -     | 794    | 730   | -     |
| Stage 2              | -      | - | - | -      | - | - | 731    | 730   | -     | 780    | 683   | -     |
| Platoon blocked, %   |        | - | - |        | - | - |        |       |       |        |       |       |
| Mov Cap-1 Maneuver   | 1347   | - | - | 1325   | - | - | 443    | 554   | 951   | 515    | 473   | 845   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 443    | 554   | -     | 515    | 473   | -     |
| Stage 1              | -      | - | - | -      | - | - | 835    | 758   | -     | 780    | 726   | -     |
| Stage 2              | -      | - | - | -      | - | - | 612    | 726   | -     | 750    | 671   | -     |

| Approach             | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|----------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s | 0.8 |  |  | 0.2 |  |  | 15.9 |  |  | 10.8 |  |  |
| HCM LOS              |     |  |  |     |  |  | C    |  |  | B    |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 469   | 1347  | -   | -   | 1325  | -   | -   | 760   |
| HCM Lane V/C Ratio    | 0.299 | 0.018 | -   | -   | 0.005 | -   | -   | 0.178 |
| HCM Control Delay (s) | 15.9  | 7.7   | -   | -   | 7.7   | 0   | -   | 10.8  |
| HCM Lane LOS          | C     | A     | -   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 1.2   | 0.1   | -   | -   | 0     | -   | -   | 0.6   |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

AM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)       | 60                                                                                | 35                                                                                | 15                                                                                | 125                                                                               | 40                                                                                | 10                                                                                |
| Future Volume (vph)        | 60                                                                                | 35                                                                                | 15                                                                                | 125                                                                               | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)            | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 116                                                                               | 0                                                                                 | 0                                                                                 | 170                                                                               | 61                                                                                | 0                                                                                 |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 60                                                                                | 60                                                                                |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 2.2                                                                               |      |        |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR  | WBL    | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |      |        |  |  |       |
| Traffic Vol, veh/h       | 60                                                                                | 35   | 15     | 125                                                                               | 40                                                                                | 10    |
| Future Vol, veh/h        | 60                                                                                | 35   | 15     | 125                                                                               | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0      | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free | Free   | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None | -      | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -    | -      | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 82                                                                                | 82   | 82     | 82                                                                                | 82                                                                                | 82    |
| Heavy Vehicles, %        | 7                                                                                 | 7    | 5      | 5                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 73                                                                                | 43   | 18     | 152                                                                               | 49                                                                                | 12    |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            |      | Major2 |                                                                                   | Minor1                                                                            |       |
| Conflicting Flow All     | 0                                                                                 | 0    | 116    | 0                                                                                 | 283                                                                               | 95    |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 95                                                                                | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 188                                                                               | -     |
| Critical Hdwy            | -                                                                                 | -    | 4.15   | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -    | 2.245  | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -    | 1454   | -                                                                                 | 707                                                                               | 962   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 929                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 844                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -    |        | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -    | 1454   | -                                                                                 | 697                                                                               | 962   |
| Mov Cap-2 Maneuver       | -                                                                                 | -    | -      | -                                                                                 | 697                                                                               | -     |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 929                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 832                                                                               | -     |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                |      | WB     |                                                                                   | NB                                                                                |       |
| HCM Control Delay, s     | 0                                                                                 |      | 0.8    |                                                                                   | 10.3                                                                              |       |
| HCM LOS                  |                                                                                   |      |        |                                                                                   | B                                                                                 |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT  | EBR    | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 738                                                                               | -    | -      | 1454                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.083                                                                             | -    | -      | 0.013                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 10.3                                                                              | -    | -      | 7.5                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | B                                                                                 | -    | -      | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.3                                                                               | -    | -      | 0                                                                                 | -                                                                                 |       |

# Lanes, Volumes, Timings

2023 Interim Build (Kwik Trip + 400 MF Units)

## 400: Vettelson Road/Hartland Quarry Driveway & Capitol Drive

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)       | 25                                                                                | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 10                                                                                | 20                                                                                  | 1                                                                                   | 15                                                                                  | 20                                                                                  | 5                                                                                   | 85                                                                                  |
| Future Volume (vph)        | 25                                                                                | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 10                                                                                | 20                                                                                  | 1                                                                                   | 15                                                                                  | 20                                                                                  | 5                                                                                   | 85                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 50                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 1                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               |                                                                                   |                                                                                     | 458                                                                                 |                                                                                     |                                                                                     | 371                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                     | 12.5                                                                                |                                                                                     |                                                                                     | 10.1                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 11%                                                                               | 11%                                                                               | 11%                                                                               | 5%                                                                                | 5%                                                                                | 5%                                                                                | 10%                                                                                 | 10%                                                                                 | 10%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 0                                                                                 | 93                                                                                | 0                                                                                 | 0                                                                                 | 80                                                                                | 0                                                                                 | 0                                                                                   | 28                                                                                  | 20                                                                                  | 0                                                                                   | 147                                                                                 | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 60                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 60                                                                                | 15                                                                                  |                                                                                     | 9                                                                                   | 60                                                                                  |                                                                                     | 60                                                                                  |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |       |        |      |       |        |      |       |        |       |       |
|--------------------------|--------|-------|-------|--------|------|-------|--------|------|-------|--------|-------|-------|
| Int Delay, s/veh         | 6.3    |       |       |        |      |       |        |      |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT  | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |       |        | ↕    |       |        | ↕    | ↕     |        | ↕     |       |
| Traffic Vol, veh/h       | 25     | 35    | 10    | 15     | 35   | 10    | 20     | 1    | 15    | 20     | 5     | 85    |
| Future Vol, veh/h        | 25     | 35    | 10    | 15     | 35   | 10    | 20     | 1    | 15    | 20     | 5     | 85    |
| Conflicting Peds, #/hr   | 0      | 0     | 0     | 0      | 0    | 0     | 0      | 0    | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free  | Free   | Free | Free  | Stop   | Stop | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None  | -      | -    | None  | -      | -    | None  | -      | -     | None  |
| Storage Length           | -      | -     | -     | -      | -    | -     | -      | -    | 50    | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -     | -      | 0    | -     | -      | 0    | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -     | -      | 0    | -     | -      | 0    | -     | -      | 0     | -     |
| Peak Hour Factor         | 75     | 75    | 75    | 75     | 75   | 75    | 75     | 75   | 75    | 75     | 75    | 75    |
| Heavy Vehicles, %        | 11     | 11    | 11    | 5      | 5    | 5     | 10     | 10   | 10    | 2      | 2     | 2     |
| Mvmt Flow                | 33     | 47    | 13    | 20     | 47   | 13    | 27     | 1    | 20    | 27     | 7     | 113   |
| Major/Minor              | Major1 |       |       | Major2 |      |       | Minor1 |      |       | Minor2 |       |       |
| Conflicting Flow All     | 60     | 0     | 0     | 60     | 0    | 0     | 274    | 220  | 54    | 224    | 220   | 54    |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 120    | 120  | -     | 94     | 94    | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 154    | 100  | -     | 130    | 126   | -     |
| Critical Hdwy            | 4.21   | -     | -     | 4.15   | -    | -     | 7.2    | 6.6  | 6.3   | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -     | -      | -    | -     | 6.2    | 5.6  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -     | -      | -    | -     | 6.2    | 5.6  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.299  | -     | -     | 2.245  | -    | -     | 3.59   | 4.09 | 3.39  | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1488   | -     | -     | 1525   | -    | -     | 663    | 665  | 991   | 732    | 678   | 1013  |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 865    | 781  | -     | 913    | 817   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 830    | 797  | -     | 874    | 792   | -     |
| Platoon blocked, %       | -      | -     | -     | -      | -    | -     | -      | -    | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1488   | -     | -     | 1525   | -    | -     | 568    | 640  | 991   | 696    | 653   | 1013  |
| Mov Cap-2 Maneuver       | -      | -     | -     | -      | -    | -     | 568    | 640  | -     | 696    | 653   | -     |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 845    | 763  | -     | 892    | 806   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 721    | 786  | -     | 835    | 774   | -     |
| Approach                 | EB     |       |       | WB     |      |       | NB     |      |       | SB     |       |       |
| HCM Control Delay, s     | 2.7    |       |       | 1.8    |      |       | 10.4   |      |       | 9.7    |       |       |
| HCM LOS                  |        |       |       |        |      |       | B      |      |       | A      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBL   | EBT    | EBR  | WBL   | WBT    | WBR  | SBLn1 |        |       |       |
| Capacity (veh/h)         | 571    | 991   | 1488  | -      | -    | 1525  | -      | -    | 914   |        |       |       |
| HCM Lane V/C Ratio       | 0.049  | 0.02  | 0.022 | -      | -    | 0.013 | -      | -    | 0.16  |        |       |       |
| HCM Control Delay (s)    | 11.6   | 8.7   | 7.5   | 0      | -    | 7.4   | 0      | -    | 9.7   |        |       |       |
| HCM Lane LOS             | B      | A     | A     | A      | -    | A     | A      | -    | A     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0.1   | 0.1   | -      | -    | 0     | -      | -    | 0.6   |        |       |       |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)       | 95                                                                                | 40                                                                                | 35                                                                                | 85                                                                                | 25                                                                                | 175                                                                               | 50                                                                                  | 625                                                                                 | 155                                                                                 | 200                                                                                 | 365                                                                                 | 105                                                                                 |
| Future Volume (vph)        | 95                                                                                | 40                                                                                | 35                                                                                | 85                                                                                | 25                                                                                | 175                                                                               | 50                                                                                  | 625                                                                                 | 155                                                                                 | 200                                                                                 | 365                                                                                 | 105                                                                                 |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Storage Length (ft)        | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     | 1                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     | 35                                                                                  |                                                                                     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     | 633                                                                                 |                                                                                     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     | 12.3                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 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                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |
| Heavy Vehicles (%)         | 1%                                                                                | 1%                                                                                | 1%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                  | 1%                                                                                  | 1%                                                                                  | 3%                                                                                  | 3%                                                                                  | 3%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 100                                                                               | 42                                                                                | 23                                                                                | 89                                                                                | 26                                                                                | 114                                                                               | 53                                                                                  | 658                                                                                 | 101                                                                                 | 211                                                                                 | 384                                                                                 | 69                                                                                  |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     |
| Permitted Phases           | 4                                                                                 |                                                                                   | 4                                                                                 | 8                                                                                 |                                                                                   | 8                                                                                 | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                               | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                               | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.56                                                                              | 0.17                                                                              | 0.11                                                                              | 0.51                                                                              | 0.11                                                                              | 0.56                                                                              | 0.07                                                                               | 0.30                                                                                | 0.10                                                                                | 0.37                                                                                | 0.16                                                                                | 0.07                                                                                |
| Control Delay           | 48.3                                                                              | 35.5                                                                              | 34.6                                                                              | 46.2                                                                              | 34.4                                                                              | 47.0                                                                              | 3.9                                                                                | 9.6                                                                                 | 8.8                                                                                 | 5.4                                                                                 | 6.8                                                                                 | 7.2                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 48.3                                                                              | 35.5                                                                              | 34.6                                                                              | 46.2                                                                              | 34.4                                                                              | 47.0                                                                              | 3.9                                                                                | 9.6                                                                                 | 8.8                                                                                 | 5.4                                                                                 | 6.8                                                                                 | 7.2                                                                                 |
| Queue Length 50th (ft)  | 55                                                                                | 22                                                                                | 12                                                                                | 49                                                                                | 14                                                                                | 63                                                                                | 6                                                                                  | 82                                                                                  | 21                                                                                  | 25                                                                                  | 42                                                                                  | 13                                                                                  |
| Queue Length 95th (ft)  | 101                                                                               | 49                                                                                | 33                                                                                | 91                                                                                | 35                                                                                | 111                                                                               | 18                                                                                 | 143                                                                                 | 53                                                                                  | 57                                                                                  | 73                                                                                  | 34                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                    | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 304                                                                               | 411                                                                               | 350                                                                               | 297                                                                               | 407                                                                               | 346                                                                               | 797                                                                                | 2163                                                                                | 968                                                                                 | 606                                                                                 | 2340                                                                                | 1046                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.33                                                                              | 0.10                                                                              | 0.07                                                                              | 0.30                                                                              | 0.06                                                                              | 0.33                                                                              | 0.07                                                                               | 0.30                                                                                | 0.10                                                                                | 0.35                                                                                | 0.16                                                                                | 0.07                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

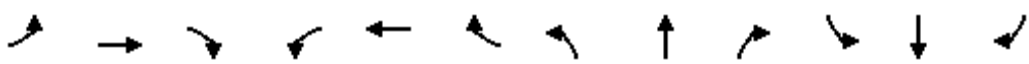
Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary 100: STH 83 & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

PM Peak Hour

|                              |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |   |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 95                                                                                 | 40                                                                                | 35                                                                                | 85                                                                                | 25                                                                                | 175                                                                               | 50                                                                                | 625                                                                                 | 155                                                                                 | 200                                                                                 | 365                                                                                 | 105                                                                                 |
| Future Volume (veh/h)        | 95                                                                                 | 40                                                                                | 35                                                                                | 85                                                                                | 25                                                                                | 175                                                                               | 50                                                                                | 625                                                                                 | 155                                                                                 | 200                                                                                 | 365                                                                                 | 105                                                                                 |
| 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                                                                              | 1885                                                                              | 1885                                                                                | 1885                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 100                                                                                | 42                                                                                | 23                                                                                | 89                                                                                | 26                                                                                | 114                                                                               | 53                                                                                | 658                                                                                 | 101                                                                                 | 211                                                                                 | 384                                                                                 | 69                                                                                  |
| 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                                                                                 | 1                                                                                 | 1                                                                                   | 1                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 208                                                                                | 215                                                                               | 182                                                                               | 205                                                                               | 213                                                                               | 181                                                                               | 747                                                                               | 2283                                                                                | 1018                                                                                | 587                                                                                 | 2309                                                                                | 1030                                                                                |
| Arrive On Green              | 0.11                                                                               | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.05                                                                              | 0.64                                                                                | 0.64                                                                                | 0.07                                                                                | 0.65                                                                                | 0.65                                                                                |
| Sat Flow, veh/h              | 1259                                                                               | 1885                                                                              | 1598                                                                              | 1337                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                              | 3582                                                                                | 1598                                                                                | 1767                                                                                | 3526                                                                                | 1572                                                                                |
| Grp Volume(v), veh/h         | 100                                                                                | 42                                                                                | 23                                                                                | 89                                                                                | 26                                                                                | 114                                                                               | 53                                                                                | 658                                                                                 | 101                                                                                 | 211                                                                                 | 384                                                                                 | 69                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1259                                                                               | 1885                                                                              | 1598                                                                              | 1337                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                              | 1791                                                                                | 1598                                                                                | 1767                                                                                | 1763                                                                                | 1572                                                                                |
| Q Serve(g_s), s              | 7.0                                                                                | 1.8                                                                               | 1.2                                                                               | 5.8                                                                               | 1.1                                                                               | 6.2                                                                               | 0.9                                                                               | 7.3                                                                                 | 2.2                                                                                 | 3.6                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Cycle Q Clear(g_c), s        | 8.1                                                                                | 1.8                                                                               | 1.2                                                                               | 7.6                                                                               | 1.1                                                                               | 6.2                                                                               | 0.9                                                                               | 7.3                                                                                 | 2.2                                                                                 | 3.6                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Prop In Lane                 | 1.00                                                                               |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 208                                                                                | 215                                                                               | 182                                                                               | 205                                                                               | 213                                                                               | 181                                                                               | 747                                                                               | 2283                                                                                | 1018                                                                                | 587                                                                                 | 2309                                                                                | 1030                                                                                |
| V/C Ratio(X)                 | 0.48                                                                               | 0.20                                                                              | 0.13                                                                              | 0.43                                                                              | 0.12                                                                              | 0.63                                                                              | 0.07                                                                              | 0.29                                                                                | 0.10                                                                                | 0.36                                                                                | 0.17                                                                                | 0.07                                                                                |
| Avail Cap(c_a), veh/h        | 340                                                                                | 413                                                                               | 350                                                                               | 346                                                                               | 409                                                                               | 347                                                                               | 849                                                                               | 2283                                                                                | 1018                                                                                | 656                                                                                 | 2309                                                                                | 1030                                                                                |
| HCM Platoon Ratio            | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 39.5                                                                               | 36.1                                                                              | 35.8                                                                              | 39.6                                                                              | 35.8                                                                              | 38.1                                                                              | 4.6                                                                               | 7.2                                                                                 | 6.3                                                                                 | 4.9                                                                                 | 6.0                                                                                 | 5.6                                                                                 |
| Incr Delay (d2), s/veh       | 0.6                                                                                | 0.2                                                                               | 0.1                                                                               | 0.5                                                                               | 0.1                                                                               | 1.3                                                                               | 0.0                                                                               | 0.3                                                                                 | 0.2                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.2                                                                                | 0.8                                                                               | 0.5                                                                               | 1.9                                                                               | 0.5                                                                               | 2.5                                                                               | 0.3                                                                               | 2.5                                                                                 | 0.7                                                                                 | 1.0                                                                                 | 1.2                                                                                 | 0.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 40.1                                                                               | 36.3                                                                              | 36.0                                                                              | 40.1                                                                              | 35.9                                                                              | 39.4                                                                              | 4.6                                                                               | 7.6                                                                                 | 6.5                                                                                 | 5.1                                                                                 | 6.2                                                                                 | 5.7                                                                                 |
| LnGrp LOS                    | D                                                                                  | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 165                                                                                |                                                                                   |                                                                                   | 229                                                                               |                                                                                   |                                                                                   | 812                                                                               |                                                                                     |                                                                                     | 664                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 38.6                                                                               |                                                                                   |                                                                                   | 39.3                                                                              |                                                                                   |                                                                                   | 7.2                                                                               |                                                                                     |                                                                                     | 5.8                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                  | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.9                                                                                | 64.5                                                                              |                                                                                   | 16.6                                                                              | 10.5                                                                              | 63.0                                                                              |                                                                                   | 16.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                                | 5.6                                                                               |                                                                                   | * 6.3                                                                             | 4.5                                                                               | 5.6                                                                               |                                                                                   | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                                | 44.4                                                                              |                                                                                   | * 20                                                                              | 9.5                                                                               | 44.4                                                                              |                                                                                   | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.9                                                                                | 5.8                                                                               |                                                                                   | 10.1                                                                              | 5.6                                                                               | 9.3                                                                               |                                                                                   | 9.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                | 5.6                                                                               |                                                                                   | 0.2                                                                               | 0.1                                                                               | 10.2                                                                              |                                                                                   | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

HCM 6th Ctrl Delay 13.4

HCM 6th LOS B

## Notes

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

# Lanes, Volumes, Timings

2023 Interim Build (Kwik Trip + 400 MF Units)

200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)       | 100                                                                               | 190                                                                               | 105                                                                               | 5                                                                                 | 135                                                                               | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Future Volume (vph)        | 100                                                                               | 190                                                                               | 105                                                                               | 5                                                                                 | 135                                                                               | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                    | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                    | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 111                                                                               | 211                                                                               | 117                                                                               | 0                                                                                 | 162                                                                               | 0                                                                                 | 0                                                                                  | 128                                                                                 | 0                                                                                   | 0                                                                                   | 83                                                                                  | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                 |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 5.6                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |  |      |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 100                                                                               | 190                                                                               | 105                                                                               | 5    | 135                                                                               | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Future Vol, veh/h        | 100                                                                               | 190                                                                               | 105                                                                               | 5    | 135                                                                               | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -    | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -    | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 90                                                                                | 90                                                                                | 90                                                                                | 90   | 90                                                                                | 90   | 90   | 90                                                                                | 90   | 90   | 90                                                                                  | 90   |
| Heavy Vehicles, %        | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2    | 2                                                                                 | 2    | 2    | 2                                                                                 | 2    | 2    | 2                                                                                   | 2    |
| Mvmt Flow                | 111                                                                               | 211                                                                               | 117                                                                               | 6    | 150                                                                               | 6    | 106  | 11                                                                                | 11   | 11   | 11                                                                                  | 61   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 156    | 0 | 0 | 328    | 0 | 0 | 634    | 601   | 211   | 668    | 715   | 153   |
| Stage 1              | -      | - | - | -      | - | - | 433    | 433   | -     | 165    | 165   | -     |
| Stage 2              | -      | - | - | -      | - | - | 201    | 168   | -     | 503    | 550   | -     |
| Critical Hdwy        | 4.15   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.245  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1406   | - | - | 1232   | - | - | 392    | 414   | 829   | 372    | 356   | 893   |
| Stage 1              | -      | - | - | -      | - | - | 601    | 582   | -     | 837    | 762   | -     |
| Stage 2              | -      | - | - | -      | - | - | 801    | 759   | -     | 551    | 516   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1406   | - | - | 1232   | - | - | 333    | 379   | 829   | 336    | 326   | 893   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 333    | 379   | -     | 336    | 326   | -     |
| Stage 1              | -      | - | - | -      | - | - | 554    | 536   | -     | 771    | 758   | -     |
| Stage 2              | -      | - | - | -      | - | - | 732    | 755   | -     | 490    | 475   | -     |

| Approach             | EB |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|----------------------|----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s | 2  |  |  | 0.3 |  |  | 20.7 |  |  | 11.8 |  |  |
| HCM LOS              |    |  |  |     |  |  | C    |  |  | B    |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 355   | 1406  | -   | -   | 1232  | -   | -   | 615   |
| HCM Lane V/C Ratio    | 0.36  | 0.079 | -   | -   | 0.005 | -   | -   | 0.136 |
| HCM Control Delay (s) | 20.7  | 7.8   | -   | -   | 7.9   | 0   | -   | 11.8  |
| HCM Lane LOS          | C     | A     | -   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 1.6   | 0.3   | -   | -   | 0     | -   | -   | 0.5   |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Interim Build (Kwik Trip + 400 MF Units)

PM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)       | 175                                                                               | 35                                                                                | 15                                                                                | 105                                                                               | 40                                                                                | 10                                                                                |
| Future Volume (vph)        | 175                                                                               | 35                                                                                | 15                                                                                | 105                                                                               | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)            | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 233                                                                               | 0                                                                                 | 0                                                                                 | 134                                                                               | 55                                                                                | 0                                                                                 |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 1.8                                                                               |        |       |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR    | WBL   | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |        |       |  |  |       |
| Traffic Vol, veh/h       | 175                                                                               | 35     | 15    | 105                                                                               | 40                                                                                | 10    |
| Future Vol, veh/h        | 175                                                                               | 35     | 15    | 105                                                                               | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0     | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free   | Free  | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None   | -     | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -      | -     | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 90                                                                                | 90     | 90    | 90                                                                                | 90                                                                                | 90    |
| Heavy Vehicles, %        | 5                                                                                 | 5      | 2     | 2                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 194                                                                               | 39     | 17    | 117                                                                               | 44                                                                                | 11    |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            | Major2 |       | Minor1                                                                            |                                                                                   |       |
| Conflicting Flow All     | 0                                                                                 | 0      | 233   | 0                                                                                 | 365                                                                               | 214   |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 214                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 151                                                                               | -     |
| Critical Hdwy            | -                                                                                 | -      | 4.12  | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -     | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -     | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218 | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1335  | -                                                                                 | 635                                                                               | 826   |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 822                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 877                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -      |       | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1335  | -                                                                                 | 626                                                                               | 826   |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -     | -                                                                                 | 626                                                                               | -     |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 822                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 865                                                                               | -     |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                | WB     |       | NB                                                                                |                                                                                   |       |
| HCM Control Delay, s     | 0                                                                                 | 1      |       | 11                                                                                |                                                                                   |       |
| HCM LOS                  | B                                                                                 |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT    | EBR   | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 658                                                                               | -      | -     | 1335                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.084                                                                             | -      | -     | 0.012                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 11                                                                                | -      | -     | 7.7                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | B                                                                                 | -      | -     | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.3                                                                               | -      | -     | 0                                                                                 | -                                                                                 |       |

# Lanes, Volumes, Timings

2023 Interim Build (Kwik Trip + 400 MF Units)

## 400: Vettelson Road/Hartland Quarry Driveway & Capitol Drive

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)       | 95                                                                                | 75                                                                                | 15                                                                                | 20                                                                                | 50                                                                                | 25                                                                                | 20                                                                                 | 5                                                                                   | 20                                                                                  | 15                                                                                  | 5                                                                                   | 50                                                                                  |
| Future Volume (vph)        | 95                                                                                | 75                                                                                | 15                                                                                | 20                                                                                | 50                                                                                | 25                                                                                | 20                                                                                 | 5                                                                                   | 20                                                                                  | 15                                                                                  | 5                                                                                   | 50                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 50                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 1                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               |                                                                                   |                                                                                    | 458                                                                                 |                                                                                     |                                                                                     | 371                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                    | 12.5                                                                                |                                                                                     |                                                                                     | 10.1                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                               | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 6%                                                                                | 6%                                                                                | 6%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                 | 1%                                                                                  | 1%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 0                                                                                 | 222                                                                               | 0                                                                                 | 0                                                                                 | 114                                                                               | 0                                                                                 | 0                                                                                  | 30                                                                                  | 24                                                                                  | 0                                                                                   | 84                                                                                  | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                 |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|--------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 5.4    |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |       |        | ↕    |       |        | ↕     | ↕     |        | ↕     |       |
| Traffic Vol, veh/h       | 95     | 75    | 15    | 20     | 50   | 25    | 20     | 5     | 20    | 15     | 5     | 50    |
| Future Vol, veh/h        | 95     | 75    | 15    | 20     | 50   | 25    | 20     | 5     | 20    | 15     | 5     | 50    |
| Conflicting Peds, #/hr   | 0      | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -     | -      | -    | -     | -      | -     | 50    | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 83     | 83    | 83    | 83     | 83   | 83    | 83     | 83    | 83    | 83     | 83    | 83    |
| Heavy Vehicles, %        | 6      | 6     | 6     | 1      | 1    | 1     | 1      | 1     | 1     | 2      | 2     | 2     |
| Mvmt Flow                | 114    | 90    | 18    | 24     | 60   | 30    | 24     | 6     | 24    | 18     | 6     | 60    |
| Major/Minor              | Major1 |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 90     | 0     | 0     | 108    | 0    | 0     | 483    | 465   | 99    | 465    | 459   | 75    |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 327    | 327   | -     | 123    | 123   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 156    | 138   | -     | 342    | 336   | -     |
| Critical Hdwy            | 4.16   | -     | -     | 4.11   | -    | -     | 7.11   | 6.51  | 6.21  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -     | -      | -    | -     | 6.11   | 5.51  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -     | -      | -    | -     | 6.11   | 5.51  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.254  | -     | -     | 2.209  | -    | -     | 3.509  | 4.009 | 3.309 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1480   | -     | -     | 1489   | -    | -     | 496    | 496   | 960   | 508    | 499   | 986   |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 688    | 650   | -     | 881    | 794   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 849    | 784   | -     | 673    | 642   | -     |
| Platoon blocked, %       | -      | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1480   | -     | -     | 1489   | -    | -     | 427    | 447   | 960   | 454    | 450   | 986   |
| Mov Cap-2 Maneuver       | -      | -     | -     | -      | -    | -     | 427    | 447   | -     | 454    | 450   | -     |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 632    | 597   | -     | 809    | 781   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 778    | 771   | -     | 596    | 589   | -     |
| Approach                 | EB     |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 3.9    |       |       | 1.6    |      |       | 11.7   |       |       | 10.5   |       |       |
| HCM LOS                  |        |       |       |        |      |       | B      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 431    | 960   | 1480  | -      | -    | 1489  | -      | -     | 738   |        |       |       |
| HCM Lane V/C Ratio       | 0.07   | 0.025 | 0.077 | -      | -    | 0.016 | -      | -     | 0.114 |        |       |       |
| HCM Control Delay (s)    | 14     | 8.8   | 7.6   | 0      | -    | 7.5   | 0      | -     | 10.5  |        |       |       |
| HCM Lane LOS             | B      | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0.1   | 0.3   | -      | -    | 0     | -      | -     | 0.4   |        |       |       |

# **APPENDIX C**

## **Year 2023 Build Traffic Operational Analysis**

### **Full Buildout – Kwik Trip + 450 Apartment Units**

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-----|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |     |
| Lane Configurations        |  |  |  |  |  |  |   |  |  |  |  |  |      |     |
| Traffic Volume (vph)       | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 210                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 130                                                                                 | 425                                                                                 | 45                                                                                  |      |     |
| Future Volume (vph)        | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 210                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 130                                                                                 | 425                                                                                 | 45                                                                                  |      |     |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |     |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |      |     |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Storage Length (ft)        | 330                                                                               |                                                                                   |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   |                                                                                     | 135                                                                                 | 335                                                                                 |                                                                                     |                                                                                     | 150                                                                                 | 200  | 305 |
| Storage Lanes              | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     |                                                                                     | 1                                                                                   | 1    | 1   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |                                                                                     | 100                                                                                 |      |     |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |      |     |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     |                                                                                     |                                                                                     | 35   |     |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     |                                                                                     | 627                                                                                 |                                                                                     |                                                                                     |                                                                                     | 633  |     |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 12.2                                                                                |                                                                                     |                                                                                     |                                                                                     | 12.3 |     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |      |     |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |      |     |
| Heavy Vehicles (%)         | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 10%                                                                                 | 10%                                                                                 | 10%                                                                                 | 5%                                                                                  | 5%                                                                                  | 5%                                                                                  |      |     |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |      |     |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |      |     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Lane Group Flow (vph)      | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 174                                                                               | 27                                                                                  | 273                                                                                 | 58                                                                                  | 173                                                                                 | 567                                                                                 | 37                                                                                  |      |     |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |      |     |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |      |     |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |      |     |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     | 16                                                                                  |                                                                                     |      |     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |     |
| Turning Speed (mph)        | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                | 9                                                                                 |                                                                                   | 15                                                                                  | 9                                                                                   |                                                                                     | 15                                                                                  | 9                                                                                   |                                                                                     |      |     |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |      |     |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   | 1                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   |                                                                                     | 2    |     |
| Permitted Phases           | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 2                                                                                   | 2                                                                                   |                                                                                     |      |     |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |      |     |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |      |     |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |      |     |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |      |     |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |      |     |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |      |     |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |      |     |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |     |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |      |     |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |      |     |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |     |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |      |     |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |      |     |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                               | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                               | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.12                                                                              | 0.04                                                                              | 0.07                                                                              | 0.74                                                                              | 0.09                                                                              | 0.66                                                                              | 0.05                                                                               | 0.15                                                                                | 0.07                                                                                | 0.23                                                                                | 0.25                                                                                | 0.04                                                                                |
| Control Delay           | 31.1                                                                              | 29.4                                                                              | 29.9                                                                              | 54.5                                                                              | 30.4                                                                              | 46.8                                                                              | 5.2                                                                                | 10.2                                                                                | 10.7                                                                                | 5.5                                                                                 | 8.1                                                                                 | 8.3                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 31.1                                                                              | 29.4                                                                              | 29.9                                                                              | 54.5                                                                              | 30.4                                                                              | 46.8                                                                              | 5.2                                                                                | 10.2                                                                                | 10.7                                                                                | 5.5                                                                                 | 8.1                                                                                 | 8.3                                                                                 |
| Queue Length 50th (ft)  | 13                                                                                | 6                                                                                 | 8                                                                                 | 95                                                                                | 13                                                                                | 94                                                                                | 4                                                                                  | 34                                                                                  | 14                                                                                  | 26                                                                                  | 51                                                                                  | 6                                                                                   |
| Queue Length 95th (ft)  | 28                                                                                | 17                                                                                | 21                                                                                | 125                                                                               | 28                                                                                | 122                                                                               | 11                                                                                 | 53                                                                                  | 31                                                                                  | 46                                                                                  | 97                                                                                  | 20                                                                                  |
| Internal Link Dist (ft) | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                   | 547                                                                                |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   |                                                                                    | 135                                                                                 | 335                                                                                 | 150                                                                                 | 200                                                                                 | 305                                                                                 |
| Base Capacity (vph)     | 301                                                                               | 407                                                                               | 346                                                                               | 308                                                                               | 411                                                                               | 350                                                                               | 615                                                                                | 1875                                                                                | 839                                                                                 | 769                                                                                 | 2254                                                                                | 1008                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.09                                                                              | 0.03                                                                              | 0.05                                                                              | 0.56                                                                              | 0.07                                                                              | 0.50                                                                              | 0.04                                                                               | 0.15                                                                                | 0.07                                                                                | 0.22                                                                                | 0.25                                                                                | 0.04                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

AM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 210                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 130                                                                                 | 425                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 20                                                                                | 10                                                                                | 20                                                                                | 130                                                                               | 20                                                                                | 210                                                                               | 20                                                                                  | 205                                                                                 | 70                                                                                  | 130                                                                                 | 425                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1752                                                                                | 1752                                                                                | 1752                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 174                                                                               | 27                                                                                  | 273                                                                                 | 58                                                                                  | 173                                                                                 | 567                                                                                 | 37                                                                                  |
| Peak Hour Factor             | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 246                                                                               | 285                                                                               | 242                                                                               | 284                                                                               | 287                                                                               | 244                                                                               | 563                                                                                 | 1995                                                                                | 890                                                                                 | 772                                                                                 | 2195                                                                                | 979                                                                                 |
| Arrive On Green              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.03                                                                                | 0.60                                                                                | 0.60                                                                                | 0.07                                                                                | 0.63                                                                                | 0.63                                                                                |
| Sat Flow, veh/h              | 1181                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 3328                                                                                | 1485                                                                                | 1739                                                                                | 3469                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h         | 27                                                                                | 13                                                                                | 17                                                                                | 173                                                                               | 27                                                                                | 174                                                                               | 27                                                                                  | 273                                                                                 | 58                                                                                  | 173                                                                                 | 567                                                                                 | 37                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1181                                                                              | 1870                                                                              | 1585                                                                              | 1391                                                                              | 1885                                                                              | 1598                                                                              | 1668                                                                                | 1664                                                                                | 1485                                                                                | 1739                                                                                | 1735                                                                                | 1547                                                                                |
| Q Serve(g_s), s              | 1.8                                                                               | 0.5                                                                               | 0.8                                                                               | 10.9                                                                              | 1.1                                                                               | 9.3                                                                               | 0.5                                                                                 | 3.2                                                                                 | 1.5                                                                                 | 3.3                                                                                 | 6.5                                                                                 | 0.8                                                                                 |
| Cycle Q Clear(g_c), s        | 2.9                                                                               | 0.5                                                                               | 0.8                                                                               | 11.4                                                                              | 1.1                                                                               | 9.3                                                                               | 0.5                                                                                 | 3.2                                                                                 | 1.5                                                                                 | 3.3                                                                                 | 6.5                                                                                 | 0.8                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 246                                                                               | 285                                                                               | 242                                                                               | 284                                                                               | 287                                                                               | 244                                                                               | 563                                                                                 | 1995                                                                                | 890                                                                                 | 772                                                                                 | 2195                                                                                | 979                                                                                 |
| V/C Ratio(X)                 | 0.11                                                                              | 0.05                                                                              | 0.07                                                                              | 0.61                                                                              | 0.09                                                                              | 0.71                                                                              | 0.05                                                                                | 0.14                                                                                | 0.07                                                                                | 0.22                                                                                | 0.26                                                                                | 0.04                                                                                |
| Avail Cap(c_a), veh/h        | 324                                                                               | 409                                                                               | 347                                                                               | 376                                                                               | 413                                                                               | 350                                                                               | 685                                                                                 | 1995                                                                                | 890                                                                                 | 841                                                                                 | 2195                                                                                | 979                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 34.0                                                                              | 32.5                                                                              | 32.7                                                                              | 37.4                                                                              | 32.8                                                                              | 36.3                                                                              | 6.3                                                                                 | 7.9                                                                                 | 7.5                                                                                 | 5.5                                                                                 | 7.3                                                                                 | 6.2                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.8                                                                               | 0.1                                                                               | 1.5                                                                               | 0.0                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 0.3                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.2                                                                               | 0.3                                                                               | 3.8                                                                               | 0.5                                                                               | 3.7                                                                               | 0.2                                                                                 | 1.1                                                                                 | 0.5                                                                                 | 1.0                                                                                 | 2.1                                                                                 | 0.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 34.1                                                                              | 32.6                                                                              | 32.7                                                                              | 38.2                                                                              | 32.8                                                                              | 37.7                                                                              | 6.3                                                                                 | 8.0                                                                                 | 7.7                                                                                 | 5.6                                                                                 | 7.5                                                                                 | 6.3                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 57                                                                                |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 358                                                                                 |                                                                                     |                                                                                     | 777                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 33.3                                                                              |                                                                                   |                                                                                   | 37.6                                                                              |                                                                                   |                                                                                   | 7.8                                                                                 |                                                                                     |                                                                                     | 7.0                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                 | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.4                                                                               | 62.5                                                                              | 20.0                                                                              |                                                                                   | 10.4                                                                              | 59.6                                                                              | 20.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                             |                                                                                   | 4.5                                                                               | 5.6                                                                               | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              | * 20                                                                              |                                                                                   | 9.5                                                                               | 44.4                                                                              | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.5                                                                               | 8.5                                                                               | 4.9                                                                               |                                                                                   | 5.3                                                                               | 5.2                                                                               | 13.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 8.1                                                                               | 0.0                                                                               |                                                                                   | 0.1                                                                               | 3.9                                                                               | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 15.5

HCM 6th LOS B

### Notes

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

# Lanes, Volumes, Timings

2023 Full Build (Kwik Trip + 450 MF Units)

200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)       | 20                                                                                | 90                                                                                | 100                                                                               | 5                                                                                 | 165                                                                               | 1                                                                                 | 100                                                                                 | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Future Volume (vph)        | 20                                                                                | 90                                                                                | 100                                                                               | 5                                                                                 | 165                                                                               | 1                                                                                 | 100                                                                                 | 5                                                                                   | 10                                                                                  | 1                                                                                   | 15                                                                                  | 95                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                     | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                     | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 24                                                                                | 110                                                                               | 122                                                                               | 0                                                                                 | 208                                                                               | 0                                                                                 | 0                                                                                   | 140                                                                                 | 0                                                                                   | 0                                                                                   | 135                                                                                 | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 60                                                                                  | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 6th TWSC  
200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

AM Peak Hour

| Intersection             |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 5.3                                                                               |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL    | WBT                                                                               | WBR  | NBL    | NBT                                                                               | NBR   | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |  |  |  |        |  |      |        |  |       |        |  |       |
| Traffic Vol, veh/h       | 20                                                                                | 90                                                                                | 100                                                                               | 5      | 165                                                                               | 1    | 100    | 5                                                                                 | 10    | 1      | 15                                                                                  | 95    |
| Future Vol, veh/h        | 20                                                                                | 90                                                                                | 100                                                                               | 5      | 165                                                                               | 1    | 100    | 5                                                                                 | 10    | 1      | 15                                                                                  | 95    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0     | 0      | 0                                                                                   | 0     |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free   | Free                                                                              | Free | Stop   | Stop                                                                              | Stop  | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -      | -                                                                                 | None | -      | -                                                                                 | None  | -      | -                                                                                   | None  |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -      | -                                                                                 | -    | -      | -                                                                                 | -     | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 82                                                                                | 82                                                                                | 82                                                                                | 82     | 82                                                                                | 82   | 82     | 82                                                                                | 82    | 82     | 82                                                                                  | 82    |
| Heavy Vehicles, %        | 7                                                                                 | 7                                                                                 | 7                                                                                 | 5      | 5                                                                                 | 5    | 2      | 2                                                                                 | 2     | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 24                                                                                | 110                                                                               | 122                                                                               | 6      | 201                                                                               | 1    | 122    | 6                                                                                 | 12    | 1      | 18                                                                                  | 116   |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Major/Minor              | Major1                                                                            |                                                                                   |                                                                                   | Major2 |                                                                                   |      | Minor1 |                                                                                   |       | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 202                                                                               | 0                                                                                 | 0                                                                                 | 232    | 0                                                                                 | 0    | 439    | 372                                                                               | 110   | 442    | 494                                                                                 | 202   |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 158    | 158                                                                               | -     | 214    | 214                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 281    | 214                                                                               | -     | 228    | 280                                                                                 | -     |
| Critical Hdwy            | 4.17                                                                              | -                                                                                 | -                                                                                 | 4.15   | -                                                                                 | -    | 7.12   | 6.52                                                                              | 6.22  | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.263                                                                             | -                                                                                 | -                                                                                 | 2.245  | -                                                                                 | -    | 3.518  | 4.018                                                                             | 3.318 | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1341                                                                              | -                                                                                 | -                                                                                 | 1318   | -                                                                                 | -    | 528    | 558                                                                               | 943   | 526    | 476                                                                                 | 839   |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 844    | 767                                                                               | -     | 788    | 725                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 726    | 725                                                                               | -     | 775    | 679                                                                                 | -     |
| Platoon blocked, %       |                                                                                   | -                                                                                 | -                                                                                 |        | -                                                                                 | -    |        |                                                                                   |       |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1341                                                                              | -                                                                                 | -                                                                                 | 1318   | -                                                                                 | -    | 434    | 545                                                                               | 943   | 506    | 465                                                                                 | 839   |
| Mov Cap-2 Maneuver       | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 434    | 545                                                                               | -     | 506    | 465                                                                                 | -     |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 829    | 753                                                                               | -     | 774    | 721                                                                                 | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | -                                                                                 | -    | 607    | 721                                                                               | -     | 745    | 667                                                                                 | -     |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Approach                 | EB                                                                                |                                                                                   |                                                                                   | WB     |                                                                                   |      | NB     |                                                                                   |       | SB     |                                                                                     |       |
| HCM Control Delay, s     | 0.7                                                                               |                                                                                   |                                                                                   | 0.2    |                                                                                   |      | 16.2   |                                                                                   |       | 10.8   |                                                                                     |       |
| HCM LOS                  |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      | C      |                                                                                   |       | B      |                                                                                     |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBL                                                                               | EBT                                                                               | EBR    | WBL                                                                               | WBT  | WBR    | SBLn1                                                                             |       |        |                                                                                     |       |
| Capacity (veh/h)         | 460                                                                               | 1341                                                                              | -                                                                                 | -      | 1318                                                                              | -    | -      | 753                                                                               |       |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.305                                                                             | 0.018                                                                             | -                                                                                 | -      | 0.005                                                                             | -    | -      | 0.18                                                                              |       |        |                                                                                     |       |
| HCM Control Delay (s)    | 16.2                                                                              | 7.7                                                                               | -                                                                                 | -      | 7.7                                                                               | 0    | -      | 10.8                                                                              |       |        |                                                                                     |       |
| HCM Lane LOS             | C                                                                                 | A                                                                                 | -                                                                                 | -      | A                                                                                 | A    | -      | B                                                                                 |       |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 1.3                                                                               | 0.1                                                                               | -                                                                                 | -      | 0                                                                                 | -    | -      | 0.7                                                                               |       |        |                                                                                     |       |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

AM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)       | 65                                                                                | 35                                                                                | 15                                                                                | 130                                                                               | 40                                                                                | 10                                                                                |
| Future Volume (vph)        | 65                                                                                | 35                                                                                | 15                                                                                | 130                                                                               | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)            | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              | 0.82                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 7%                                                                                | 7%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 122                                                                               | 0                                                                                 | 0                                                                                 | 177                                                                               | 61                                                                                | 0                                                                                 |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 60                                                                                | 60                                                                                |                                                                                   | 60                                                                                | 60                                                                                |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 2.2                                                                               |        |       |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR    | WBL   | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |        |       |  |  |       |
| Traffic Vol, veh/h       | 65                                                                                | 35     | 15    | 130                                                                               | 40                                                                                | 10    |
| Future Vol, veh/h        | 65                                                                                | 35     | 15    | 130                                                                               | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0     | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free   | Free  | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None   | -     | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -      | -     | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 82                                                                                | 82     | 82    | 82                                                                                | 82                                                                                | 82    |
| Heavy Vehicles, %        | 7                                                                                 | 7      | 5     | 5                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 79                                                                                | 43     | 18    | 159                                                                               | 49                                                                                | 12    |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            | Major2 |       | Minor1                                                                            |                                                                                   |       |
| Conflicting Flow All     | 0                                                                                 | 0      | 122   | 0                                                                                 | 296                                                                               | 101   |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 101                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 195                                                                               | -     |
| Critical Hdwy            | -                                                                                 | -      | 4.15  | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -     | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -     | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -      | 2.245 | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1447  | -                                                                                 | 695                                                                               | 954   |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 923                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 838                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -      |       | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1447  | -                                                                                 | 685                                                                               | 954   |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -     | -                                                                                 | 685                                                                               | -     |
| Stage 1                  | -                                                                                 | -      | -     | -                                                                                 | 923                                                                               | -     |
| Stage 2                  | -                                                                                 | -      | -     | -                                                                                 | 826                                                                               | -     |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                | WB     |       | NB                                                                                |                                                                                   |       |
| HCM Control Delay, s     | 0                                                                                 | 0.8    |       | 10.4                                                                              |                                                                                   |       |
| HCM LOS                  | B                                                                                 |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
|                          |                                                                                   |        |       |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT    | EBR   | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 726                                                                               | -      | -     | 1447                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.084                                                                             | -      | -     | 0.013                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 10.4                                                                              | -      | -     | 7.5                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | B                                                                                 | -      | -     | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.3                                                                               | -      | -     | 0                                                                                 | -                                                                                 |       |

Lanes, Volumes, Timings

2023 Full Build (Kwik Trip + 450 MF Units)

400: Vettelson Road/Hartland Quarry Driveway & Capitol Drive

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)       | 30                                                                                | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 10                                                                                | 20                                                                                 | 1                                                                                   | 15                                                                                  | 25                                                                                  | 5                                                                                   | 90                                                                                  |
| Future Volume (vph)        | 30                                                                                | 35                                                                                | 10                                                                                | 15                                                                                | 35                                                                                | 10                                                                                | 20                                                                                 | 1                                                                                   | 15                                                                                  | 25                                                                                  | 5                                                                                   | 90                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 50                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 1                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               |                                                                                   |                                                                                    | 458                                                                                 |                                                                                     |                                                                                     | 371                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                    | 12.5                                                                                |                                                                                     |                                                                                     | 10.1                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                               | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                | 0.75                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 11%                                                                               | 11%                                                                               | 11%                                                                               | 5%                                                                                | 5%                                                                                | 5%                                                                                | 10%                                                                                | 10%                                                                                 | 10%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 0                                                                                 | 100                                                                               | 0                                                                                 | 0                                                                                 | 80                                                                                | 0                                                                                 | 0                                                                                  | 28                                                                                  | 20                                                                                  | 0                                                                                   | 160                                                                                 | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 60                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 60                                                                                | 15                                                                                 |                                                                                     | 9                                                                                   | 60                                                                                  |                                                                                     | 60                                                                                  |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |             |                                                                                   |       |        |                                                                                   |       |        |                                                                                   |                                                                                   |        |                                                                                     |       |
|--------------------------|-------------|-----------------------------------------------------------------------------------|-------|--------|-----------------------------------------------------------------------------------|-------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 6.5         |                                                                                   |       |        |                                                                                   |       |        |                                                                                   |                                                                                   |        |                                                                                     |       |
| Movement                 | EBL         | EBT                                                                               | EBR   | WBL    | WBT                                                                               | WBR   | NBL    | NBT                                                                               | NBR                                                                               | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |             |  |       |        |  |       |        |  |  |        |  |       |
| Traffic Vol, veh/h       | 30          | 35                                                                                | 10    | 15     | 35                                                                                | 10    | 20     | 1                                                                                 | 15                                                                                | 25     | 5                                                                                   | 90    |
| Future Vol, veh/h        | 30          | 35                                                                                | 10    | 15     | 35                                                                                | 10    | 20     | 1                                                                                 | 15                                                                                | 25     | 5                                                                                   | 90    |
| Conflicting Peds, #/hr   | 0           | 0                                                                                 | 0     | 0      | 0                                                                                 | 0     | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                   | 0     |
| Sign Control             | Free        | Free                                                                              | Free  | Free   | Free                                                                              | Free  | Stop   | Stop                                                                              | Stop                                                                              | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -           | -                                                                                 | None  | -      | -                                                                                 | None  | -      | -                                                                                 | None                                                                              | -      | -                                                                                   | None  |
| Storage Length           | -           | -                                                                                 | -     | -      | -                                                                                 | -     | -      | -                                                                                 | 50                                                                                | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -           | 0                                                                                 | -     | -      | 0                                                                                 | -     | -      | 0                                                                                 | -                                                                                 | -      | 0                                                                                   | -     |
| Grade, %                 | -           | 0                                                                                 | -     | -      | 0                                                                                 | -     | -      | 0                                                                                 | -                                                                                 | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 75          | 75                                                                                | 75    | 75     | 75                                                                                | 75    | 75     | 75                                                                                | 75                                                                                | 75     | 75                                                                                  | 75    |
| Heavy Vehicles, %        | 11          | 11                                                                                | 11    | 5      | 5                                                                                 | 5     | 10     | 10                                                                                | 10                                                                                | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 40          | 47                                                                                | 13    | 20     | 47                                                                                | 13    | 27     | 1                                                                                 | 20                                                                                | 33     | 7                                                                                   | 120   |
|                          |             |                                                                                   |       |        |                                                                                   |       |        |                                                                                   |                                                                                   |        |                                                                                     |       |
| Major/Minor              | Major1      |                                                                                   |       | Major2 |                                                                                   |       | Minor1 |                                                                                   |                                                                                   | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 60          | 0                                                                                 | 0     | 60     | 0                                                                                 | 0     | 291    | 234                                                                               | 54                                                                                | 238    | 234                                                                                 | 54    |
| Stage 1                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 134    | 134                                                                               | -                                                                                 | 94     | 94                                                                                  | -     |
| Stage 2                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 157    | 100                                                                               | -                                                                                 | 144    | 140                                                                                 | -     |
| Critical Hdwy            | 4.21        | -                                                                                 | -     | 4.15   | -                                                                                 | -     | 7.2    | 6.6                                                                               | 6.3                                                                               | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 6.2    | 5.6                                                                               | -                                                                                 | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 6.2    | 5.6                                                                               | -                                                                                 | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.299       | -                                                                                 | -     | 2.245  | -                                                                                 | -     | 3.59   | 4.09                                                                              | 3.39                                                                              | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1488        | -                                                                                 | -     | 1525   | -                                                                                 | -     | 646    | 653                                                                               | 991                                                                               | 716    | 666                                                                                 | 1013  |
| Stage 1                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 851    | 770                                                                               | -                                                                                 | 913    | 817                                                                                 | -     |
| Stage 2                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 827    | 797                                                                               | -                                                                                 | 859    | 781                                                                                 | -     |
| Platoon blocked, %       |             | -                                                                                 | -     |        | -                                                                                 | -     |        |                                                                                   |                                                                                   |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1488        | -                                                                                 | -     | 1525   | -                                                                                 | -     | 547    | 626                                                                               | 991                                                                               | 678    | 638                                                                                 | 1013  |
| Mov Cap-2 Maneuver       | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 547    | 626                                                                               | -                                                                                 | 678    | 638                                                                                 | -     |
| Stage 1                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 827    | 748                                                                               | -                                                                                 | 887    | 806                                                                                 | -     |
| Stage 2                  | -           | -                                                                                 | -     | -      | -                                                                                 | -     | 713    | 786                                                                               | -                                                                                 | 817    | 759                                                                                 | -     |
|                          |             |                                                                                   |       |        |                                                                                   |       |        |                                                                                   |                                                                                   |        |                                                                                     |       |
| Approach                 | EB          |                                                                                   |       | WB     |                                                                                   |       | NB     |                                                                                   |                                                                                   | SB     |                                                                                     |       |
| HCM Control Delay, s     | 3           |                                                                                   |       | 1.8    |                                                                                   |       | 10.6   |                                                                                   |                                                                                   | 9.9    |                                                                                     |       |
| HCM LOS                  |             |                                                                                   |       |        |                                                                                   |       | B      |                                                                                   |                                                                                   | A      |                                                                                     |       |
|                          |             |                                                                                   |       |        |                                                                                   |       |        |                                                                                   |                                                                                   |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1 NBLn2 |                                                                                   | EBL   | EBT    | EBR                                                                               | WBL   | WBT    | WBR                                                                               | SBLn1                                                                             |        |                                                                                     |       |
| Capacity (veh/h)         | 550 991     |                                                                                   | 1488  | -      | -                                                                                 | 1525  | -      | -                                                                                 | 899                                                                               |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.051 0.02  |                                                                                   | 0.027 | -      | -                                                                                 | 0.013 | -      | -                                                                                 | 0.178                                                                             |        |                                                                                     |       |
| HCM Control Delay (s)    | 11.9 8.7    |                                                                                   | 7.5   | 0      | -                                                                                 | 7.4   | 0      | -                                                                                 | 9.9                                                                               |        |                                                                                     |       |
| HCM Lane LOS             | B A         |                                                                                   | A     | A      | -                                                                                 | A     | A      | -                                                                                 | A                                                                                 |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 0.2 0.1     |                                                                                   | 0.1   | -      | -                                                                                 | 0     | -      | -                                                                                 | 0.6                                                                               |        |                                                                                     |       |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)       | 95                                                                                | 40                                                                                | 35                                                                                | 90                                                                                | 25                                                                                | 180                                                                               | 50                                                                                  | 625                                                                                 | 160                                                                                 | 205                                                                                 | 365                                                                                 | 105                                                                                 |  |  |  |  |  |  |
| Future Volume (vph)        | 95                                                                                | 40                                                                                | 35                                                                                | 90                                                                                | 25                                                                                | 180                                                                               | 50                                                                                  | 625                                                                                 | 160                                                                                 | 205                                                                                 | 365                                                                                 | 105                                                                                 |  |  |  |  |  |  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |  |  |  |  |  |  |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |  |  |  |  |  |  |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Storage Length (ft)        | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                 |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |  |  |  |  |  |  |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                   |                                                                                     | 1                                                                                   | 1                                                                                   |                                                                                     | 1                                                                                   |  |  |  |  |  |  |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Right Turn on Red          |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |  |  |  |  |  |  |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     | 35                                                                                  |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     |  |  |  |  |  |  |
| Link Distance (ft)         | 439                                                                               |                                                                                   |                                                                                   |                                                                                   | 374                                                                               |                                                                                   |                                                                                     | 627                                                                                 |                                                                                     |                                                                                     | 633                                                                                 |                                                                                     |  |  |  |  |  |  |
| Travel Time (s)            | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                     | 12.2                                                                                |                                                                                     |                                                                                     | 12.3                                                                                |                                                                                     |  |  |  |  |  |  |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| 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                                                                                |  |  |  |  |  |  |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                              | 100%                                                                              | 62%                                                                               | 100%                                                                                | 100%                                                                                | 62%                                                                                 | 100%                                                                                | 100%                                                                                | 62%                                                                                 |  |  |  |  |  |  |
| Heavy Vehicles (%)         | 1%                                                                                | 1%                                                                                | 1%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 1%                                                                                  | 1%                                                                                  | 1%                                                                                  | 3%                                                                                  | 3%                                                                                  | 3%                                                                                  |  |  |  |  |  |  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |  |  |  |  |  |  |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |  |  |  |  |  |  |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Lane Group Flow (vph)      | 100                                                                               | 42                                                                                | 23                                                                                | 95                                                                                | 26                                                                                | 117                                                                               | 53                                                                                  | 658                                                                                 | 104                                                                                 | 216                                                                                 | 384                                                                                 | 69                                                                                  |  |  |  |  |  |  |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |  |  |  |  |  |  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |  |  |  |  |  |  |
| Median Width(ft)           | 12                                                                                |                                                                                   |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |  |  |  |  |  |  |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |  |  |  |  |  |  |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |  |  |  |  |  |  |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |  |  |  |  |  |  |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |  |  |  |  |  |  |
| Turn Type                  | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |  |  |  |  |  |  |
| Protected Phases           | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                     | 1                                                                                   | 6                                                                                   | 5                                                                                   |                                                                                     | 2                                                                                   |  |  |  |  |  |  |
| Permitted Phases           | 4                                                                                 |                                                                                   | 4                                                                                 | 8                                                                                 |                                                                                   | 8                                                                                 | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   |  |  |  |  |  |  |
| Detector Phase             | 4                                                                                 | 4                                                                                 | 4                                                                                 | 8                                                                                 | 8                                                                                 | 8                                                                                 | 1                                                                                   | 6                                                                                   | 6                                                                                   | 5                                                                                   | 2                                                                                   | 2                                                                                   |  |  |  |  |  |  |
| Switch Phase               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Minimum Initial (s)        | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                | 6.0                                                                                 | 12.0                                                                                | 12.0                                                                                |  |  |  |  |  |  |
| Minimum Split (s)          | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 16.3                                                                              | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                | 10.5                                                                                | 17.6                                                                                | 17.6                                                                                |  |  |  |  |  |  |
| Total Split (s)            | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 26.0                                                                              | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                | 14.0                                                                                | 50.0                                                                                | 50.0                                                                                |  |  |  |  |  |  |
| Total Split (%)            | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 28.9%                                                                             | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               | 15.6%                                                                               | 55.6%                                                                               | 55.6%                                                                               |  |  |  |  |  |  |
| Maximum Green (s)          | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 19.7                                                                              | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                | 9.5                                                                                 | 44.4                                                                                | 44.4                                                                                |  |  |  |  |  |  |
| Yellow Time (s)            | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.3                                                                               | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 | 3.5                                                                                 | 3.6                                                                                 | 3.6                                                                                 |  |  |  |  |  |  |
| All-Red Time (s)           | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 3.0                                                                               | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |  |  |  |  |  |  |
| Lost Time Adjust (s)       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |  |  |  |  |  |  |
| Total Lost Time (s)        | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 6.3                                                                               | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 | 4.5                                                                                 | 5.6                                                                                 | 5.6                                                                                 |  |  |  |  |  |  |
| Lead/Lag                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lead                                                                                | Lag                                                                                 | Lag                                                                                 | Lead                                                                                | Lag                                                                                 | Lag                                                                                 |  |  |  |  |  |  |
| Lead-Lag Optimize?         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Vehicle Extension (s)      | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 | 1.5                                                                                 | 4.9                                                                                 | 4.9                                                                                 |  |  |  |  |  |  |
| Minimum Gap (s)            | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                               | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 1.5                                                                                 | 2.0                                                                                 | 2.0                                                                                 |  |  |  |  |  |  |

Lanes, Volumes, Timings  
100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Time Before Reduce (s)  | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                              | 30.0                                                                               | 12.0                                                                                | 12.0                                                                                | 30.0                                                                                | 12.0                                                                                | 12.0                                                                                |
| Time To Reduce (s)      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 33.0                                                                                | 33.0                                                                                | 0.0                                                                                 | 33.0                                                                                | 33.0                                                                                |
| Recall Mode             | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                              | None                                                                               | C-Max                                                                               | C-Max                                                                               | None                                                                                | C-Max                                                                               | C-Max                                                                               |
| Walk Time (s)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Flash Dont Walk (s)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Calls (#/hr) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.55                                                                              | 0.17                                                                              | 0.11                                                                              | 0.54                                                                              | 0.11                                                                              | 0.57                                                                              | 0.07                                                                               | 0.30                                                                                | 0.11                                                                                | 0.38                                                                                | 0.16                                                                                | 0.07                                                                                |
| Control Delay           | 48.1                                                                              | 35.5                                                                              | 34.5                                                                              | 47.6                                                                              | 34.3                                                                              | 47.5                                                                              | 3.9                                                                                | 9.7                                                                                 | 8.9                                                                                 | 5.5                                                                                 | 6.8                                                                                 | 7.2                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 48.1                                                                              | 35.5                                                                              | 34.5                                                                              | 47.6                                                                              | 34.3                                                                              | 47.5                                                                              | 3.9                                                                                | 9.7                                                                                 | 8.9                                                                                 | 5.5                                                                                 | 6.8                                                                                 | 7.2                                                                                 |
| Queue Length 50th (ft)  | 55                                                                                | 22                                                                                | 12                                                                                | 52                                                                                | 14                                                                                | 64                                                                                | 6                                                                                  | 82                                                                                  | 21                                                                                  | 26                                                                                  | 42                                                                                  | 13                                                                                  |
| Queue Length 95th (ft)  | 101                                                                               | 49                                                                                | 33                                                                                | 96                                                                                | 35                                                                                | 113                                                                               | 18                                                                                 | 143                                                                                 | 54                                                                                  | 58                                                                                  | 73                                                                                  | 34                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 359                                                                               |                                                                                   |                                                                                   | 294                                                                               |                                                                                   |                                                                                    | 547                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 330                                                                               |                                                                                   | 200                                                                               | 105                                                                               |                                                                                   | 135                                                                               | 335                                                                                |                                                                                     | 150                                                                                 | 200                                                                                 |                                                                                     | 305                                                                                 |
| Base Capacity (vph)     | 304                                                                               | 411                                                                               | 350                                                                               | 297                                                                               | 407                                                                               | 346                                                                               | 796                                                                                | 2160                                                                                | 966                                                                                 | 605                                                                                 | 2339                                                                                | 1046                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.33                                                                              | 0.10                                                                              | 0.07                                                                              | 0.32                                                                              | 0.06                                                                              | 0.34                                                                              | 0.07                                                                               | 0.30                                                                                | 0.11                                                                                | 0.36                                                                                | 0.16                                                                                | 0.07                                                                                |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 100: STH 83 & Capitol Drive



# HCM 6th Signalized Intersection Summary

## 100: STH 83 & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 95                                                                                | 40                                                                                | 35                                                                                | 90                                                                                | 25                                                                                | 180                                                                               | 50                                                                                  | 625                                                                                 | 160                                                                                 | 205                                                                                 | 365                                                                                 | 105                                                                                 |
| Future Volume (veh/h)        | 95                                                                                | 40                                                                                | 35                                                                                | 90                                                                                | 25                                                                                | 180                                                                               | 50                                                                                  | 625                                                                                 | 160                                                                                 | 205                                                                                 | 365                                                                                 | 105                                                                                 |
| 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                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 100                                                                               | 42                                                                                | 23                                                                                | 95                                                                                | 26                                                                                | 117                                                                               | 53                                                                                  | 658                                                                                 | 104                                                                                 | 216                                                                                 | 384                                                                                 | 69                                                                                  |
| 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                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 208                                                                               | 215                                                                               | 183                                                                               | 206                                                                               | 214                                                                               | 181                                                                               | 747                                                                                 | 2282                                                                                | 1018                                                                                | 585                                                                                 | 2308                                                                                | 1029                                                                                |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.05                                                                                | 0.64                                                                                | 0.64                                                                                | 0.07                                                                                | 0.65                                                                                | 0.65                                                                                |
| Sat Flow, veh/h              | 1255                                                                              | 1885                                                                              | 1598                                                                              | 1337                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 3582                                                                                | 1598                                                                                | 1767                                                                                | 3526                                                                                | 1572                                                                                |
| Grp Volume(v), veh/h         | 100                                                                               | 42                                                                                | 23                                                                                | 95                                                                                | 26                                                                                | 117                                                                               | 53                                                                                  | 658                                                                                 | 104                                                                                 | 216                                                                                 | 384                                                                                 | 69                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1255                                                                              | 1885                                                                              | 1598                                                                              | 1337                                                                              | 1870                                                                              | 1585                                                                              | 1795                                                                                | 1791                                                                                | 1598                                                                                | 1767                                                                                | 1763                                                                                | 1572                                                                                |
| Q Serve(g_s), s              | 7.0                                                                               | 1.8                                                                               | 1.2                                                                               | 6.2                                                                               | 1.1                                                                               | 6.4                                                                               | 0.9                                                                                 | 7.3                                                                                 | 2.3                                                                                 | 3.7                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Cycle Q Clear(g_c), s        | 8.1                                                                               | 1.8                                                                               | 1.2                                                                               | 8.1                                                                               | 1.1                                                                               | 6.4                                                                               | 0.9                                                                                 | 7.3                                                                                 | 2.3                                                                                 | 3.7                                                                                 | 3.8                                                                                 | 1.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 208                                                                               | 215                                                                               | 183                                                                               | 206                                                                               | 214                                                                               | 181                                                                               | 747                                                                                 | 2282                                                                                | 1018                                                                                | 585                                                                                 | 2308                                                                                | 1029                                                                                |
| V/C Ratio(X)                 | 0.48                                                                              | 0.20                                                                              | 0.13                                                                              | 0.46                                                                              | 0.12                                                                              | 0.65                                                                              | 0.07                                                                                | 0.29                                                                                | 0.10                                                                                | 0.37                                                                                | 0.17                                                                                | 0.07                                                                                |
| Avail Cap(c_a), veh/h        | 339                                                                               | 413                                                                               | 350                                                                               | 346                                                                               | 409                                                                               | 347                                                                               | 848                                                                                 | 2282                                                                                | 1018                                                                                | 655                                                                                 | 2308                                                                                | 1029                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 39.5                                                                              | 36.1                                                                              | 35.8                                                                              | 39.8                                                                              | 35.8                                                                              | 38.1                                                                              | 4.6                                                                                 | 7.3                                                                                 | 6.3                                                                                 | 4.9                                                                                 | 6.0                                                                                 | 5.6                                                                                 |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.2                                                                               | 0.1                                                                               | 0.6                                                                               | 0.1                                                                               | 1.4                                                                               | 0.0                                                                                 | 0.3                                                                                 | 0.2                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.2                                                                               | 0.8                                                                               | 0.5                                                                               | 2.1                                                                               | 0.5                                                                               | 2.5                                                                               | 0.3                                                                                 | 2.5                                                                                 | 0.7                                                                                 | 1.1                                                                                 | 1.2                                                                                 | 0.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 40.1                                                                              | 36.3                                                                              | 35.9                                                                              | 40.4                                                                              | 35.9                                                                              | 39.6                                                                              | 4.6                                                                                 | 7.6                                                                                 | 6.5                                                                                 | 5.1                                                                                 | 6.2                                                                                 | 5.7                                                                                 |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 165                                                                               |                                                                                   |                                                                                   |                                                                                   | 238                                                                               |                                                                                   |                                                                                     |                                                                                     | 815                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 38.5                                                                              |                                                                                   |                                                                                   |                                                                                   | 39.5                                                                              |                                                                                   |                                                                                     |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.9                                                                               | 64.5                                                                              |                                                                                   | 16.6                                                                              | 10.5                                                                              | 62.9                                                                              |                                                                                     | 16.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 5.6                                                                               |                                                                                   | * 6.3                                                                             | 4.5                                                                               | 5.6                                                                               |                                                                                     | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                               | 44.4                                                                              |                                                                                   | * 20                                                                              | 9.5                                                                               | 44.4                                                                              |                                                                                     | * 20                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.9                                                                               | 5.8                                                                               |                                                                                   | 10.1                                                                              | 5.7                                                                               | 9.3                                                                               |                                                                                     | 10.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 5.6                                                                               |                                                                                   | 0.2                                                                               | 0.1                                                                               | 10.2                                                                              |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 13.5

HCM 6th LOS B

### Notes

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

# Lanes, Volumes, Timings

2023 Full Build (Kwik Trip + 450 MF Units)

200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |  |  |  |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)       | 100                                                                               | 200                                                                               | 105                                                                               | 5                                                                                 | 145                                                                               | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Future Volume (vph)        | 100                                                                               | 200                                                                               | 105                                                                               | 5                                                                                 | 145                                                                               | 5                                                                                 | 95                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 55                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                 | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 100                                                                               |                                                                                   | 100                                                                               | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 1                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                  |                                                                                     | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 374                                                                               |                                                                                   |                                                                                   | 284                                                                               |                                                                                   |                                                                                    | 219                                                                                 |                                                                                     |                                                                                     | 419                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                    | 6.0                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                               | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 5%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 111                                                                               | 222                                                                               | 117                                                                               | 0                                                                                 | 173                                                                               | 0                                                                                 | 0                                                                                  | 128                                                                                 | 0                                                                                   | 0                                                                                   | 83                                                                                  | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                 | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                               | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 12                                                                                |                                                                                   |                                                                                   | 12                                                                                |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                    | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                 |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 6th TWSC  
200: Kwik Trip N. Dwy/Palmer Drive & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

PM Peak Hour

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 5.6                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |  |      |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 100                                                                               | 200                                                                               | 105                                                                               | 5    | 145                                                                               | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Future Vol, veh/h        | 100                                                                               | 200                                                                               | 105                                                                               | 5    | 145                                                                               | 5    | 95   | 10                                                                                | 10   | 10   | 10                                                                                  | 55   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None                                                                              | -    | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | 100                                                                               | -    | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 90                                                                                | 90                                                                                | 90                                                                                | 90   | 90                                                                                | 90   | 90   | 90                                                                                | 90   | 90   | 90                                                                                  | 90   |
| Heavy Vehicles, %        | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2    | 2                                                                                 | 2    | 2    | 2                                                                                 | 2    | 2    | 2                                                                                   | 2    |
| Mvmt Flow                | 111                                                                               | 222                                                                               | 117                                                                               | 6    | 161                                                                               | 6    | 106  | 11                                                                                | 11   | 11   | 11                                                                                  | 61   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 167    | 0 | 0 | 339    | 0 | 0 | 656    | 623   | 222   | 690    | 737   | 164   |
| Stage 1              | -      | - | - | -      | - | - | 444    | 444   | -     | 176    | 176   | -     |
| Stage 2              | -      | - | - | -      | - | - | 212    | 179   | -     | 514    | 561   | -     |
| Critical Hdwy        | 4.15   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.245  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1393   | - | - | 1220   | - | - | 379    | 402   | 818   | 359    | 346   | 881   |
| Stage 1              | -      | - | - | -      | - | - | 593    | 575   | -     | 826    | 753   | -     |
| Stage 2              | -      | - | - | -      | - | - | 790    | 751   | -     | 543    | 510   | -     |
| Platoon blocked, %   |        | - | - |        | - | - |        |       |       |        |       |       |
| Mov Cap-1 Maneuver   | 1393   | - | - | 1220   | - | - | 321    | 368   | 818   | 324    | 317   | 881   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 321    | 368   | -     | 324    | 317   | -     |
| Stage 1              | -      | - | - | -      | - | - | 546    | 529   | -     | 760    | 749   | -     |
| Stage 2              | -      | - | - | -      | - | - | 721    | 747   | -     | 483    | 469   | -     |

| Approach             | EB  |  |  | WB  |  |  | NB   |  |  | SB |  |  |
|----------------------|-----|--|--|-----|--|--|------|--|--|----|--|--|
| HCM Control Delay, s | 1.9 |  |  | 0.3 |  |  | 21.6 |  |  | 12 |  |  |
| HCM LOS              |     |  |  |     |  |  | C    |  |  | B  |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL  | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 343   | 1393 | -   | -   | 1220  | -   | -   | 601   |
| HCM Lane V/C Ratio    | 0.373 | 0.08 | -   | -   | 0.005 | -   | -   | 0.139 |
| HCM Control Delay (s) | 21.6  | 7.8  | -   | -   | 8     | 0   | -   | 12    |
| HCM Lane LOS          | C     | A    | -   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 1.7   | 0.3  | -   | -   | 0     | -   | -   | 0.5   |

Lanes, Volumes, Timings  
300: Kwik Trip S. Dwy & Capitol Drive

2023 Full Build (Kwik Trip + 450 MF Units)

PM Peak Hour

|                            |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                 | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations        |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)       | 185                                                                               | 35                                                                                | 15                                                                                | 115                                                                               | 40                                                                                | 10                                                                                |
| Future Volume (vph)        | 185                                                                               | 35                                                                                | 15                                                                                | 115                                                                               | 40                                                                                | 10                                                                                |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                  | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Storage Length (ft)        |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |
| Storage Lanes              |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 1                                                                                 | 0                                                                                 |
| Taper Length (ft)          |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               |                                                                                   |
| Link Speed (mph)           | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                | 25                                                                                |                                                                                   |
| Link Distance (ft)         | 284                                                                               |                                                                                   |                                                                                   | 477                                                                               | 220                                                                               |                                                                                   |
| Travel Time (s)            | 7.7                                                                               |                                                                                   |                                                                                   | 13.0                                                                              | 6.0                                                                               |                                                                                   |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor           | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)         | 5%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)      | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)      | 245                                                                               | 0                                                                                 | 0                                                                                 | 145                                                                               | 55                                                                                | 0                                                                                 |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                |
| Lane Alignment             | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Left                                                                              | Right                                                                             |
| Median Width(ft)           | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 12                                                                                |                                                                                   |
| Link Offset(ft)            | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |
| Crosswalk Width(ft)        | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                | 16                                                                                |                                                                                   |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Turning Speed (mph)        |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 15                                                                                | 9                                                                                 |
| Sign Control               | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 1.7                                                                               |      |        |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR  | WBL    | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |      |        |  |  |       |
| Traffic Vol, veh/h       | 185                                                                               | 35   | 15     | 115                                                                               | 40                                                                                | 10    |
| Future Vol, veh/h        | 185                                                                               | 35   | 15     | 115                                                                               | 40                                                                                | 10    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0      | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free | Free   | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None | -      | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -    | -      | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 90                                                                                | 90   | 90     | 90                                                                                | 90                                                                                | 90    |
| Heavy Vehicles, %        | 5                                                                                 | 5    | 2      | 2                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 206                                                                               | 39   | 17     | 128                                                                               | 44                                                                                | 11    |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            |      | Major2 |                                                                                   | Minor1                                                                            |       |
| Conflicting Flow All     | 0                                                                                 | 0    | 245    | 0                                                                                 | 388                                                                               | 226   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 226                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 162                                                                               | -     |
| Critical Hdwy            | -                                                                                 | -    | 4.12   | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -    | 2.218  | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -    | 1321   | -                                                                                 | 616                                                                               | 813   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 812                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 867                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -    |        | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -    | 1321   | -                                                                                 | 607                                                                               | 813   |
| Mov Cap-2 Maneuver       | -                                                                                 | -    | -      | -                                                                                 | 607                                                                               | -     |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 812                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 855                                                                               | -     |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                |      | WB     |                                                                                   | NB                                                                                |       |
| HCM Control Delay, s     | 0                                                                                 |      | 0.9    |                                                                                   | 11.2                                                                              |       |
| HCM LOS                  | B                                                                                 |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT  | EBR    | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 639                                                                               | -    | -      | 1321                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.087                                                                             | -    | -      | 0.013                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 11.2                                                                              | -    | -      | 7.8                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | B                                                                                 | -    | -      | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.3                                                                               | -    | -      | 0                                                                                 | -                                                                                 |       |

# Lanes, Volumes, Timings

2023 Full Build (Kwik Trip + 450 MF Units)

## 400: Vettelson Road/Hartland Quarry Driveway & Capitol Drive

PM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations        |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)       | 105                                                                               | 75                                                                                | 15                                                                                | 20                                                                                | 50                                                                                | 25                                                                                | 20                                                                                  | 5                                                                                   | 20                                                                                  | 15                                                                                  | 5                                                                                   | 60                                                                                  |
| Future Volume (vph)        | 105                                                                               | 75                                                                                | 15                                                                                | 20                                                                                | 50                                                                                | 25                                                                                | 20                                                                                  | 5                                                                                   | 20                                                                                  | 15                                                                                  | 5                                                                                   | 60                                                                                  |
| Ideal Flow (vphpl)         | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lane Width (ft)            | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  | 12                                                                                  |
| Grade (%)                  |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Storage Length (ft)        | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 50                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |
| Storage Lanes              | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                   |                                                                                     | 1                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (ft)          | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     | 100                                                                                 |                                                                                     |                                                                                     |
| Link Speed (mph)           |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                     | 25                                                                                  |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
| Link Distance (ft)         |                                                                                   | 477                                                                               |                                                                                   |                                                                                   | 924                                                                               |                                                                                   |                                                                                     | 458                                                                                 |                                                                                     |                                                                                     | 371                                                                                 |                                                                                     |
| Travel Time (s)            |                                                                                   | 13.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                     | 12.5                                                                                |                                                                                     |                                                                                     | 10.1                                                                                |                                                                                     |
| Confl. Peds. (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Confl. Bikes (#/hr)        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor           | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Growth Factor              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                | 100%                                                                                |
| Heavy Vehicles (%)         | 6%                                                                                | 6%                                                                                | 6%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 1%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Bus Blockages (#/hr)       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Parking (#/hr)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mid-Block Traffic (%)      |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Shared Lane Traffic (%)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)      | 0                                                                                 | 235                                                                               | 0                                                                                 | 0                                                                                 | 114                                                                               | 0                                                                                 | 0                                                                                   | 30                                                                                  | 24                                                                                  | 0                                                                                   | 96                                                                                  | 0                                                                                   |
| Enter Blocked Intersection | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  | No                                                                                  |
| Lane Alignment             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                              | Left                                                                              | Right                                                                             | Left                                                                                | Left                                                                                | Right                                                                               | Left                                                                                | Left                                                                                | Right                                                                               |
| Median Width(ft)           |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Link Offset(ft)            |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |                                                                                     |
| Crosswalk Width(ft)        |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |
| Two way Left Turn Lane     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Headway Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Speed (mph)        | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                |                                                                                   | 9                                                                                 | 15                                                                                  |                                                                                     | 9                                                                                   | 15                                                                                  |                                                                                     | 9                                                                                   |
| Sign Control               |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Intersection Summary       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Area Type:                 | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type:              | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|--------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 5.6    |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |       |        | ↕    |       |        | ↕     | ↕     |        | ↕     |       |
| Traffic Vol, veh/h       | 105    | 75    | 15    | 20     | 50   | 25    | 20     | 5     | 20    | 15     | 5     | 60    |
| Future Vol, veh/h        | 105    | 75    | 15    | 20     | 50   | 25    | 20     | 5     | 20    | 15     | 5     | 60    |
| Conflicting Peds, #/hr   | 0      | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -     | -      | -    | -     | -      | -     | 50    | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 83     | 83    | 83    | 83     | 83   | 83    | 83     | 83    | 83    | 83     | 83    | 83    |
| Heavy Vehicles, %        | 6      | 6     | 6     | 1      | 1    | 1     | 1      | 1     | 1     | 2      | 2     | 2     |
| Mvmt Flow                | 127    | 90    | 18    | 24     | 60   | 30    | 24     | 6     | 24    | 18     | 6     | 72    |
| Major/Minor              | Major1 |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 90     | 0     | 0     | 108    | 0    | 0     | 515    | 491   | 99    | 491    | 485   | 75    |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 353    | 353   | -     | 123    | 123   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 162    | 138   | -     | 368    | 362   | -     |
| Critical Hdwy            | 4.16   | -     | -     | 4.11   | -    | -     | 7.11   | 6.51  | 6.21  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -     | -      | -    | -     | 6.11   | 5.51  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -     | -      | -    | -     | 6.11   | 5.51  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.254  | -     | -     | 2.209  | -    | -     | 3.509  | 4.009 | 3.309 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1480   | -     | -     | 1489   | -    | -     | 472    | 480   | 960   | 488    | 482   | 986   |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 666    | 633   | -     | 881    | 794   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 842    | 784   | -     | 652    | 625   | -     |
| Platoon blocked, %       | -      | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1480   | -     | -     | 1489   | -    | -     | 397    | 429   | 960   | 432    | 430   | 986   |
| Mov Cap-2 Maneuver       | -      | -     | -     | -      | -    | -     | 397    | 429   | -     | 432    | 430   | -     |
| Stage 1                  | -      | -     | -     | -      | -    | -     | 605    | 575   | -     | 800    | 781   | -     |
| Stage 2                  | -      | -     | -     | -      | -    | -     | 761    | 771   | -     | 571    | 568   | -     |
| Approach                 | EB     |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 4.1    |       |       | 1.6    |      |       | 12.1   |       |       | 10.5   |       |       |
| HCM LOS                  |        |       |       |        |      |       | B      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 403    | 960   | 1480  | -      | -    | 1489  | -      | -     | 746   |        |       |       |
| HCM Lane V/C Ratio       | 0.075  | 0.025 | 0.085 | -      | -    | 0.016 | -      | -     | 0.129 |        |       |       |
| HCM Control Delay (s)    | 14.7   | 8.8   | 7.7   | 0      | -    | 7.5   | 0      | -     | 10.5  |        |       |       |
| HCM Lane LOS             | B      | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0.1   | 0.3   | -      | -    | 0     | -      | -     | 0.4   |        |       |       |

HCS Roundabouts Report

| General Information |  |
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## Site Information

|                     |                                |  |                           |                                 |
|---------------------|--------------------------------|--|---------------------------|---------------------------------|
| Analyst             | TADI                           |  | Intersection              | Capitol Drive & Kwik Trip So... |
| Agency or Co.       | Village of Hartland            |  | E/W Street Name           | Capitol Drive                   |
| Date Performed      | 3/24/2023                      |  | N/S Street Name           | Kwik Trip South Driveway        |
| Analysis Year       | 2023                           |  | Analysis Time Period, hrs | 0.25                            |
| Time Analyzed       | Full Build - AM Peak           |  | Peak Hour Factor          | 0.82                            |
| Project Description | 3047 Kwik Trip-Apartments T... |  | Jurisdiction              | Hartland                        |

### Volume Adjustments and Site Characteristics

| Approach                      | EB   |   |    |    | WB   |    |     |   | NB   |    |    |    | SB   |   |   |   |
|-------------------------------|------|---|----|----|------|----|-----|---|------|----|----|----|------|---|---|---|
| Movement                      | U    | L | T  | R  | U    | L  | T   | R | U    | L  | T  | R  | U    | L | T | R |
| Number of Lanes (N)           | 0    | 0 | 1  | 0  | 0    | 0  | 1   | 0 | 0    | 0  | 1  | 0  | 0    | 0 | 0 | 0 |
| Lane Assignment               |      |   | TR |    |      |    | LT  |   |      |    | LR |    |      |   |   |   |
| Volume (V), veh/h             | 0    |   | 65 | 35 | 0    | 15 | 130 |   | 0    | 40 |    | 10 |      |   |   |   |
| Percent Heavy Vehicles, %     | 7    |   | 7  | 7  | 5    | 5  | 5   |   | 2    | 2  |    | 2  |      |   |   |   |
| Flow Rate ( $v_{PCE}$ ), pc/h | 0    |   | 85 | 46 | 0    | 19 | 166 |   | 0    | 50 |    | 12 |      |   |   |   |
| Right-Turn Bypass             | None |   |    |    | None |    |     |   | None |    |    |    | None |   |   |   |
| Conflicting Lanes             | 1    |   |    |    | 1    |    |     |   | 1    |    |    |    |      |   |   |   |
| Pedestrians Crossing, p/h     | 0    |   |    |    | 0    |    |     |   | 0    |    |    |    |      |   |   |   |
| Proportion of CAVs            | 0    |   |    |    |      |    |     |   |      |    |    |    |      |   |   |   |

### Critical and Follow-Up Headway Adjustment

| Approach             | EB   |        |        | WB   |        |        | NB   |        |        | SB   |       |        |
|----------------------|------|--------|--------|------|--------|--------|------|--------|--------|------|-------|--------|
| Lane                 | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right | Bypass |
| Critical Headway, s  |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |      |       |        |
| Follow-Up Headway, s |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |      |       |        |

## Flow Computations, Capacity and v/c Ratios

| Approach                         | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|----------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                             | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Entry Flow ( $v_e$ ), pc/h       |      | 131   |        |      | 185   |        |      | 62    |        |      |       |        |
| Entry Volume, veh/h              |      | 122   |        |      | 176   |        |      | 61    |        |      |       |        |
| Circulating Flow ( $v_c$ ), pc/h | 19   |       |        | 50   |       |        | 85   |       |        | 235  |       |        |
| Exiting Flow ( $v_{ex}$ ), pc/h  | 97   |       |        | 216  |       |        | 0    |       |        | 65   |       |        |
| Capacity ( $c_{pce}$ ), pc/h     |      | 1360  |        |      | 1321  |        |      | 1278  |        |      |       |        |
| Capacity ( $c$ ), veh/h          |      | 1271  |        |      | 1258  |        |      | 1253  |        |      |       |        |
| v/c Ratio ( $x$ )                |      | 0.10  |        |      | 0.14  |        |      | 0.05  |        |      |       |        |

| Delay and Level of Service |  |
|----------------------------|--|
|----------------------------|--|

| Approach                        | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|---------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                            | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Lane Control Delay (d), s/veh   |      | 3.6   |        |      | 4.0   |        |      | 3.3   |        |      |       |        |
| Lane LOS                        |      | A     |        |      | A     |        |      | A     |        |      |       |        |
| 95% Queue, veh                  |      | 0.3   |        |      | 0.5   |        |      | 0.2   |        |      |       |        |
| Approach Delay, s/veh           | 3.6  |       |        | 4.0  |       |        | 3.3  |       |        |      |       |        |
| Approach LOS                    | A    |       |        | A    |       |        | A    |       |        |      |       |        |
| Intersection Delay, s/veh   LOS | 3.8  |       |        |      |       |        | A    |       |        |      |       |        |

HCS Roundabouts Report

| General Information |  |
|---------------------|--|
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## Site Information

|                     |                                |  |                           |                                 |
|---------------------|--------------------------------|--|---------------------------|---------------------------------|
| Analyst             | TADI                           |  | Intersection              | Capitol Drive & Kwik Trip So... |
| Agency or Co.       | Village of Hartland            |  | E/W Street Name           | Capitol Drive                   |
| Date Performed      | 3/24/2023                      |  | N/S Street Name           | Kwik Trip South Driveway        |
| Analysis Year       | 2023                           |  | Analysis Time Period, hrs | 0.25                            |
| Time Analyzed       | Full Build - PM Peak           |  | Peak Hour Factor          | 0.90                            |
| Project Description | 3047 Kwik Trip-Apartments T... |  | Jurisdiction              | Hartland                        |

### Volume Adjustments and Site Characteristics

| Approach                      | EB   |   |     |    | WB   |    |     |   | NB   |    |    |    | SB   |   |   |   |
|-------------------------------|------|---|-----|----|------|----|-----|---|------|----|----|----|------|---|---|---|
| Movement                      | U    | L | T   | R  | U    | L  | T   | R | U    | L  | T  | R  | U    | L | T | R |
| Number of Lanes (N)           | 0    | 0 | 1   | 0  | 0    | 0  | 1   | 0 | 0    | 0  | 1  | 0  | 0    | 0 | 0 | 0 |
| Lane Assignment               |      |   | TR  |    |      |    | LT  |   |      |    | LR |    |      |   |   |   |
| Volume (V), veh/h             | 0    |   | 185 | 35 | 0    | 15 | 115 |   | 0    | 40 |    | 10 |      |   |   |   |
| Percent Heavy Vehicles, %     | 5    |   | 5   | 5  | 2    | 2  | 2   |   | 2    | 2  |    | 2  |      |   |   |   |
| Flow Rate ( $v_{PCE}$ ), pc/h | 0    |   | 216 | 41 | 0    | 17 | 130 |   | 0    | 45 |    | 11 |      |   |   |   |
| Right-Turn Bypass             | None |   |     |    | None |    |     |   | None |    |    |    | None |   |   |   |
| Conflicting Lanes             | 1    |   |     |    | 1    |    |     |   | 1    |    |    |    |      |   |   |   |
| Pedestrians Crossing, p/h     | 0    |   |     |    | 0    |    |     |   | 0    |    |    |    |      |   |   |   |
| Proportion of CAVs            | 0    |   |     |    |      |    |     |   |      |    |    |    |      |   |   |   |

### Critical and Follow-Up Headway Adjustment

| Approach             | EB   |        |        | WB   |        |        | NB   |        |        | SB   |       |        |
|----------------------|------|--------|--------|------|--------|--------|------|--------|--------|------|-------|--------|
| Lane                 | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right | Bypass |
| Critical Headway, s  |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |      |       |        |
| Follow-Up Headway, s |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |      |       |        |

## Flow Computations, Capacity and v/c Ratios

| Approach                         | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|----------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                             | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Entry Flow ( $v_e$ ), pc/h       |      | 257   |        |      | 147   |        |      | 56    |        |      |       |        |
| Entry Volume, veh/h              |      | 245   |        |      | 144   |        |      | 55    |        |      |       |        |
| Circulating Flow ( $v_c$ ), pc/h | 17   |       |        | 45   |       |        | 216  |       |        | 192  |       |        |
| Exiting Flow ( $v_{ex}$ ), pc/h  | 227  |       |        | 175  |       |        | 0    |       |        | 58   |       |        |
| Capacity ( $c_{pce}$ ), pc/h     |      | 1363  |        |      | 1327  |        |      | 1129  |        |      |       |        |
| Capacity ( $c$ ), veh/h          |      | 1298  |        |      | 1301  |        |      | 1107  |        |      |       |        |
| v/c Ratio ( $x$ )                |      | 0.19  |        |      | 0.11  |        |      | 0.05  |        |      |       |        |

| Delay and Level of Service |  |  |  |  |  |  |  |  |  |
|----------------------------|--|--|--|--|--|--|--|--|--|
|----------------------------|--|--|--|--|--|--|--|--|--|

| Approach                        | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|---------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                            | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Lane Control Delay (d), s/veh   |      | 4.4   |        |      | 3.7   |        |      | 3.7   |        |      |       |        |
| Lane LOS                        |      | A     |        |      | A     |        |      | A     |        |      |       |        |
| 95% Queue, veh                  |      | 0.7   |        |      | 0.4   |        |      | 0.2   |        |      |       |        |
| Approach Delay, s/veh           | 4.4  |       |        | 3.7  |       |        | 3.7  |       |        |      |       |        |
| Approach LOS                    | A    |       |        | A    |       |        | A    |       |        |      |       |        |
| Intersection Delay, s/veh   LOS | 4.0  |       |        |      |       |        | A    |       |        |      |       |        |

# HCS Roundabouts Report

| General Information |                                |  |  | Site Information          |                                 |  |  |
|---------------------|--------------------------------|--|--|---------------------------|---------------------------------|--|--|
| Analyst             | TADI                           |  |  | Intersection              | Capitol Drive & Vettelson Ro... |  |  |
| Agency or Co.       | Village of Hartland            |  |  | E/W Street Name           | Capitol Drive                   |  |  |
| Date Performed      | 3/24/2023                      |  |  | N/S Street Name           | Vettelson/Apartment Drivew...   |  |  |
| Analysis Year       | 2023                           |  |  | Analysis Time Period, hrs | 0.25                            |  |  |
| Time Analyzed       | Full Build - AM Peak           |  |  | Peak Hour Factor          | 0.75                            |  |  |
| Project Description | 3047 Kwik Trip-Apartments T... |  |  | Jurisdiction              | Hartland                        |  |  |

## Volume Adjustments and Site Characteristics

| Approach                            | EB   |    |     |    | WB   |    |     |    | NB   |    |     |    | SB   |    |     |     |
|-------------------------------------|------|----|-----|----|------|----|-----|----|------|----|-----|----|------|----|-----|-----|
| Movement                            | U    | L  | T   | R  | U    | L  | T   | R  | U    | L  | T   | R  | U    | L  | T   | R   |
| Number of Lanes (N)                 | 0    | 0  | 1   | 0  | 0    | 0  | 1   | 0  | 0    | 0  | 1   | 0  | 0    | 0  | 1   | 0   |
| Lane Assignment                     |      |    | LTR |    |      |    | LTR |    |      |    | LTR |    |      |    | LTR |     |
| Volume (V), veh/h                   | 0    | 30 | 35  | 10 | 0    | 15 | 35  | 10 | 0    | 20 | 1   | 15 | 0    | 25 | 5   | 90  |
| Percent Heavy Vehicles, %           | 11   | 11 | 11  | 11 | 5    | 5  | 5   | 5  | 10   | 10 | 10  | 10 | 2    | 2  | 2   | 2   |
| Flow Rate (v <sub>PCE</sub> ), pc/h | 0    | 44 | 52  | 15 | 0    | 21 | 49  | 14 | 0    | 29 | 1   | 22 | 0    | 34 | 7   | 122 |
| Right-Turn Bypass                   | None |    |     |    | None |    |     |    | None |    |     |    | None |    |     |     |
| Conflicting Lanes                   | 1    |    |     |    | 1    |    |     |    | 1    |    |     |    | 1    |    |     |     |
| Pedestrians Crossing, p/h           | 0    |    |     |    | 0    |    |     |    | 0    |    |     |    | 0    |    |     |     |
| Proportion of CAVs                  | 0    |    |     |    |      |    |     |    |      |    |     |    |      |    |     |     |

## Critical and Follow-Up Headway Adjustment

| Approach             | EB   |        |        | WB   |        |        | NB   |        |        | SB   |        |        |
|----------------------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|
| Lane                 | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass |
| Critical Headway, s  |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |
| Follow-Up Headway, s |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |

## Flow Computations, Capacity and v/c Ratios

| Approach                                 | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|------------------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                                     | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Entry Flow (v <sub>e</sub> ), pc/h       |      | 111   |        |      | 84    |        |      | 52    |        |      | 163   |        |
| Entry Volume, veh/h                      |      | 100   |        |      | 80    |        |      | 47    |        |      | 160   |        |
| Circulating Flow (v <sub>c</sub> ), pc/h | 62   |       |        | 74   |       |        | 130  |       |        | 99   |       |        |
| Exiting Flow (v <sub>ex</sub> ), pc/h    | 108  |       |        | 200  |       |        | 59   |       |        | 43   |       |        |
| Capacity (C <sub>pce</sub> ), pc/h       |      | 1306  |        |      | 1291  |        |      | 1225  |        |      | 1261  |        |
| Capacity (c), veh/h                      |      | 1176  |        |      | 1230  |        |      | 1113  |        |      | 1236  |        |
| v/c Ratio (x)                            |      | 0.09  |        |      | 0.07  |        |      | 0.04  |        |      | 0.13  |        |

## Delay and Level of Service

| Approach                        | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|---------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                            | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Lane Control Delay (d), s/veh   |      | 3.8   |        |      | 3.5   |        |      | 3.6   |        |      | 4.0   |        |
| Lane LOS                        |      | A     |        |      | A     |        |      | A     |        |      | A     |        |
| 95% Queue, veh                  |      | 0.3   |        |      | 0.2   |        |      | 0.1   |        |      | 0.4   |        |
| Approach Delay, s/veh           | 3.8  |       |        | 3.5  |       |        | 3.6  |       |        | 4.0  |       |        |
| Approach LOS                    | A    |       |        | A    |       |        | A    |       |        | A    |       |        |
| Intersection Delay, s/veh   LOS | 3.8  |       |        |      |       |        | A    |       |        |      |       |        |

# HCS Roundabouts Report

| General Information |                                |  |  | Site Information          |                                 |  |  |
|---------------------|--------------------------------|--|--|---------------------------|---------------------------------|--|--|
| Analyst             | TADI                           |  |  | Intersection              | Capitol Drive & Vettelson Ro... |  |  |
| Agency or Co.       | Village of Hartland            |  |  | E/W Street Name           | Capitol Drive                   |  |  |
| Date Performed      | 3/24/2023                      |  |  | N/S Street Name           | Vettelson/Apartment Drivew...   |  |  |
| Analysis Year       | 2023                           |  |  | Analysis Time Period, hrs | 0.25                            |  |  |
| Time Analyzed       | Full Build - PM Peak           |  |  | Peak Hour Factor          | 0.83                            |  |  |
| Project Description | 3047 Kwik Trip-Apartments T... |  |  | Jurisdiction              | Hartland                        |  |  |

## Volume Adjustments and Site Characteristics

| Approach                            | EB   |     |     |    | WB   |    |     |    | NB   |    |     |    | SB   |    |     |    |
|-------------------------------------|------|-----|-----|----|------|----|-----|----|------|----|-----|----|------|----|-----|----|
| Movement                            | U    | L   | T   | R  | U    | L  | T   | R  | U    | L  | T   | R  | U    | L  | T   | R  |
| Number of Lanes (N)                 | 0    | 0   | 1   | 0  | 0    | 0  | 1   | 0  | 0    | 0  | 1   | 0  | 0    | 0  | 1   | 0  |
| Lane Assignment                     |      |     | LTR |    |      |    | LTR |    |      |    | LTR |    |      |    | LTR |    |
| Volume (V), veh/h                   | 0    | 105 | 75  | 15 | 0    | 20 | 50  | 25 | 0    | 20 | 5   | 20 | 0    | 15 | 5   | 60 |
| Percent Heavy Vehicles, %           | 6    | 6   | 6   | 6  | 1    | 1  | 1   | 1  | 1    | 1  | 1   | 1  | 2    | 2  | 2   | 2  |
| Flow Rate (v <sub>PCE</sub> ), pc/h | 0    | 134 | 96  | 19 | 0    | 24 | 61  | 30 | 0    | 24 | 6   | 24 | 0    | 18 | 6   | 74 |
| Right-Turn Bypass                   | None |     |     |    | None |    |     |    | None |    |     |    | None |    |     |    |
| Conflicting Lanes                   | 1    |     |     |    | 1    |    |     |    | 1    |    |     |    | 1    |    |     |    |
| Pedestrians Crossing, p/h           | 0    |     |     |    | 0    |    |     |    | 0    |    |     |    | 0    |    |     |    |
| Proportion of CAVs                  | 0    |     |     |    |      |    |     |    |      |    |     |    |      |    |     |    |

## Critical and Follow-Up Headway Adjustment

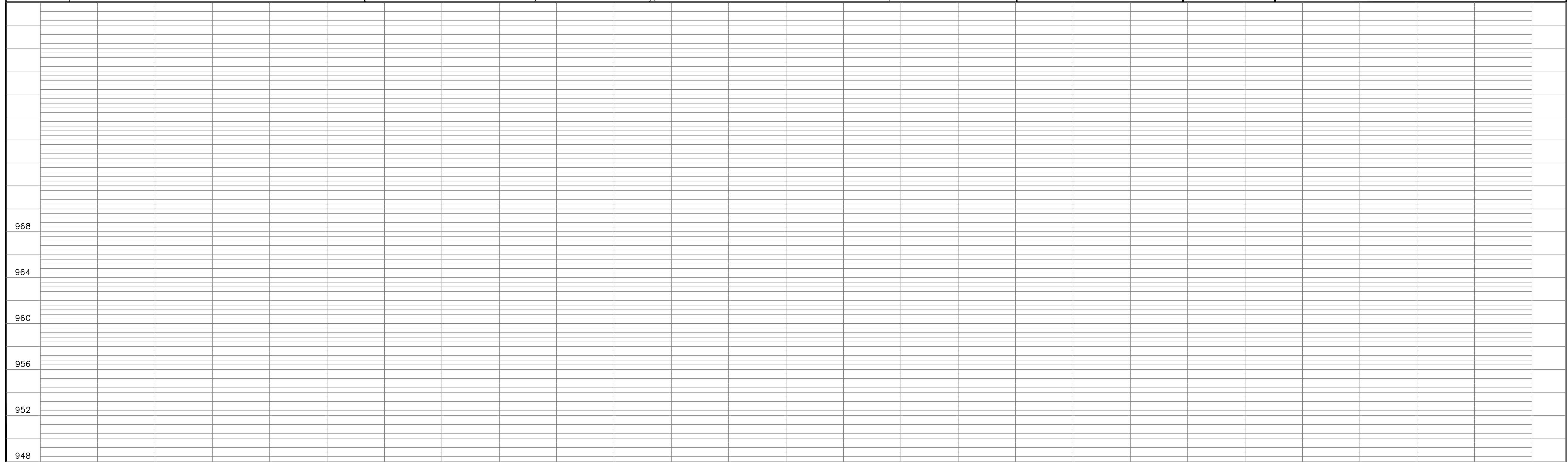
| Approach             | EB   |        |        | WB   |        |        | NB   |        |        | SB   |        |        |
|----------------------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|
| Lane                 | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass | Left | Right  | Bypass |
| Critical Headway, s  |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |      | 4.7000 |        |
| Follow-Up Headway, s |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |      | 2.6000 |        |

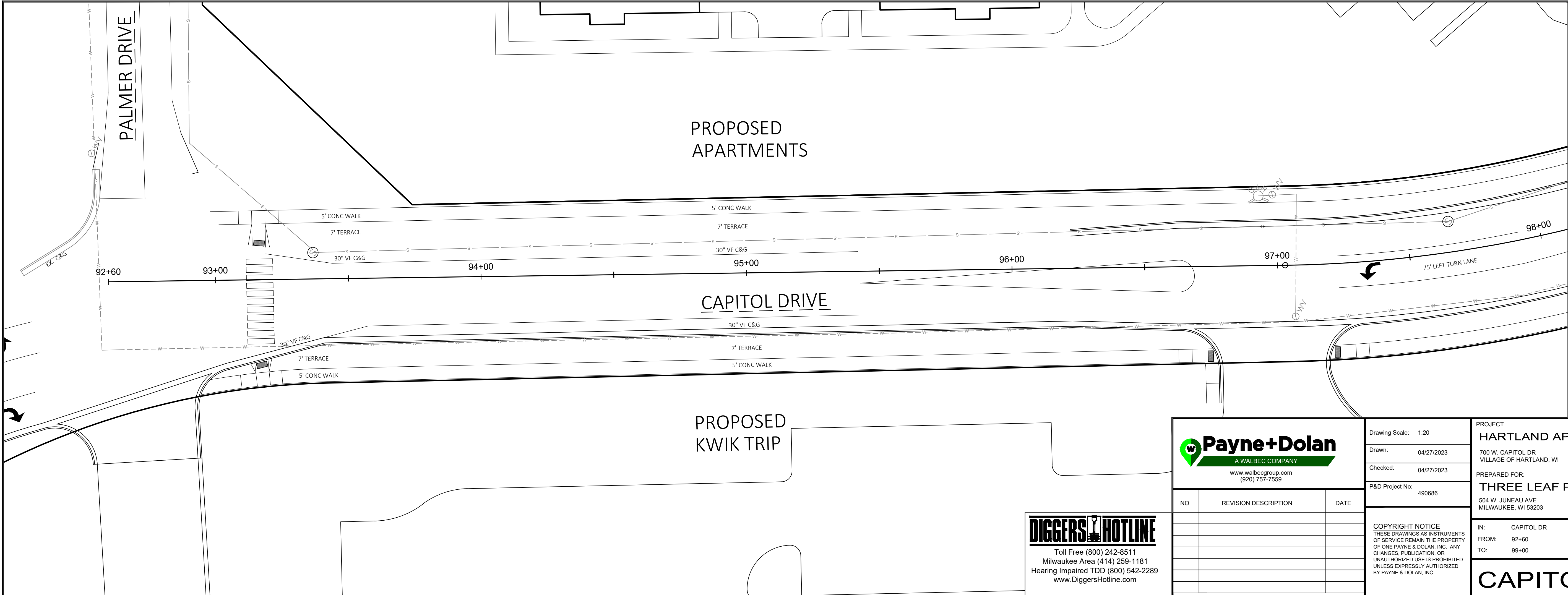
## Flow Computations, Capacity and v/c Ratios

| Approach                                 | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|------------------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                                     | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Entry Flow (v <sub>e</sub> ), pc/h       |      | 249   |        |      | 115   |        |      | 54    |        |      | 98    |        |
| Entry Volume, veh/h                      |      | 235   |        |      | 114   |        |      | 53    |        |      | 96    |        |
| Circulating Flow (v <sub>c</sub> ), pc/h | 48   |       |        | 164  |       |        | 248  |       |        | 109  |       |        |
| Exiting Flow (v <sub>ex</sub> ), pc/h    | 138  |       |        | 159  |       |        | 170  |       |        | 49   |       |        |
| Capacity (C <sub>pce</sub> ), pc/h       |      | 1323  |        |      | 1186  |        |      | 1095  |        |      | 1249  |        |
| Capacity (c), veh/h                      |      | 1248  |        |      | 1174  |        |      | 1085  |        |      | 1225  |        |
| v/c Ratio (x)                            |      | 0.19  |        |      | 0.10  |        |      | 0.05  |        |      | 0.08  |        |

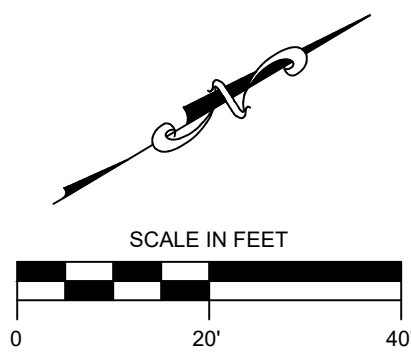
## Delay and Level of Service

| Approach                        | EB   |       |        | WB   |       |        | NB   |       |        | SB   |       |        |
|---------------------------------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|
| Lane                            | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass | Left | Right | Bypass |
| Lane Control Delay (d), s/veh   |      | 4.5   |        |      | 3.9   |        |      | 3.7   |        |      | 3.6   |        |
| Lane LOS                        |      | A     |        |      | A     |        |      | A     |        |      | A     |        |
| 95% Queue, veh                  |      | 0.7   |        |      | 0.3   |        |      | 0.2   |        |      | 0.3   |        |
| Approach Delay, s/veh           | 4.5  |       |        | 3.9  |       |        | 3.7  |       |        | 3.6  |       |        |
| Approach LOS                    | A    |       |        | A    |       |        | A    |       |        | A    |       |        |
| Intersection Delay, s/veh   LOS | 4.1  |       |        |      |       |        | A    |       |        |      |       |        |





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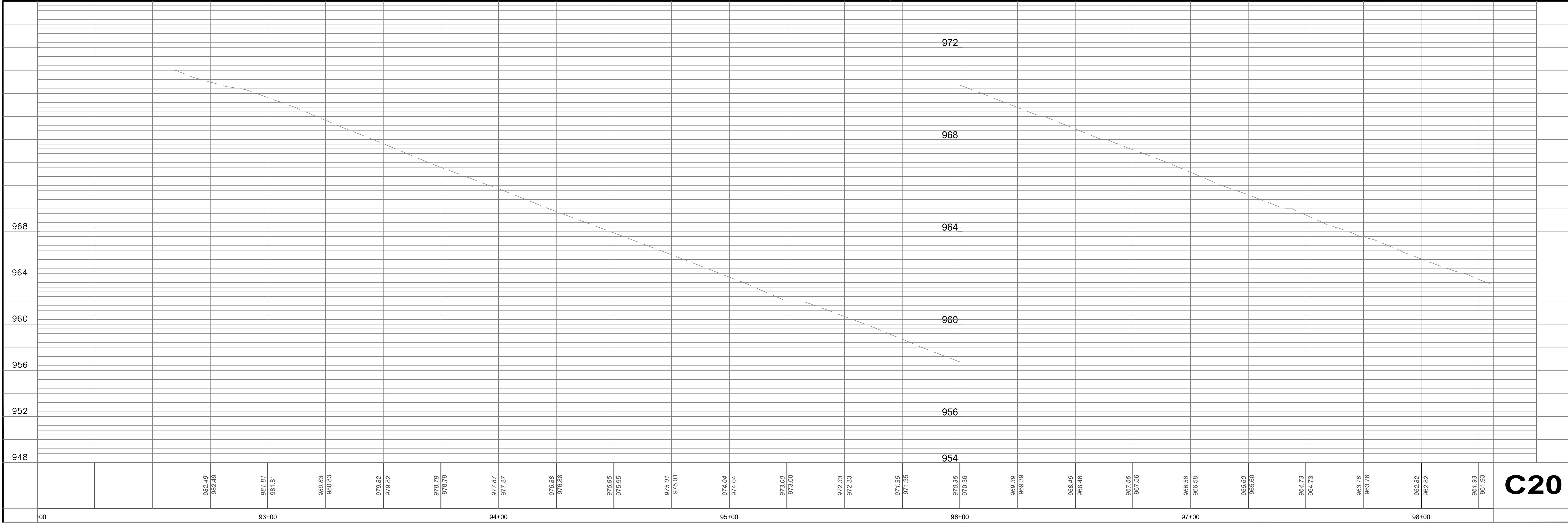


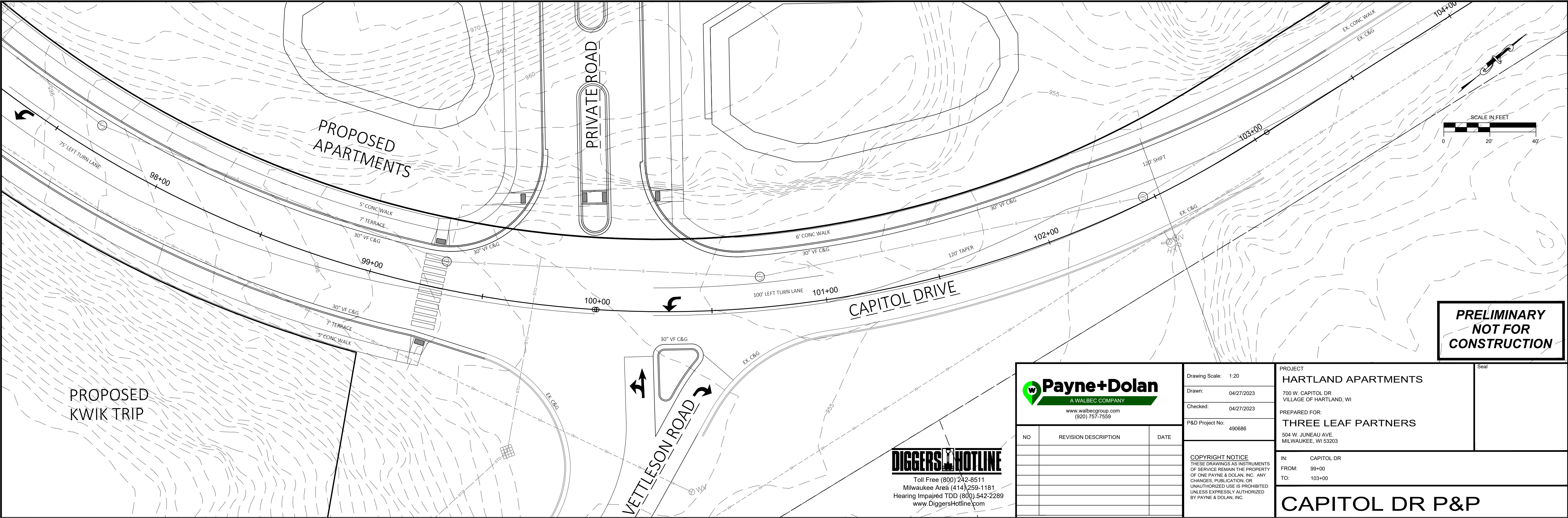
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| Drawn: 04/27/2023                                                                                                                                                                                                                            |                                                                                         |                                            |
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| Drawing Scale: 1:20                                                                                                                                                                                                        | PROJECT<br><b>HARTLAND APARTMENTS</b><br>700 W. CAPITOL DR<br>VILLAGE OF HARTLAND, WI   | Seal                                        |
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