



## ALTERNATIVE MOBILITY TARGETS TECHNICAL MEMO

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TO: Project Team

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SUBJECT: US 20 Bend Facility Plan: Alternative Mobility Targets

Project #22140-000

### PURPOSE

This technical memorandum summarizes a preliminary evaluation of potential locations where alternative mobility targets may be needed on US 20 within the study area from 3<sup>rd</sup> Street to Powell Butte Highway. This evaluation reflects the community-driven outcomes and technical work performed as part of the US 20 Bend Facility Plan. The findings presented herein identify locations where alternative mobility targets should be considered as part of future collaboration and work efforts between the City of Bend, Oregon Department of Transportation (ODOT) Region 4, Bend Metropolitan Planning Organization (MPO), and other interested parties. Final review and approval of alternative mobility targets for State highway corridors would be an action of the Oregon Transportation Commission (OTC).

### INTRODUCTION

The Oregon Transportation Planning Rule (TPR) requires cities to identify the needs associated with existing and planned multimodal facilities. The US 20 Bend Facility Plan identifies strategies to improve safety, mobility, and reliability for all modes of travel. Also, it is important to identify which transportation projects and services are reasonably likely to be implemented within the study area over the 20-year planning horizon. This enables the community, local agencies, and the State to establish realistic expectations for the operation of the transportation system by the end of the planning period. Projects resulting from this planning effort will become part of the Bend MPO Metropolitan Transportation Plan and incorporated into the City of Bend's Transportation System Plan (TSP).

The performance of study intersections was compared against the adopted mobility targets, including targets from the Oregon Highway Plan (OHP) and ODOT Highway Design Manual (HDM). It should be noted that the HDM mobility targets were only used for future study intersections with

preferred alternatives. The OHP identifies highway mobility targets to ensure acceptable and reliable mobility levels on the state highway system, with the consideration of facility type, location, and functional objectives.<sup>1</sup> The ODOT HDM provides design volume-to-capacity (v/c) ratio standards for project development or design which are different from mobility targets from the OHP. The targets in the OHP are used to assist in the planning phase by identifying future system deficiencies, where the values in the HDM aim to provide a mobility solution that corrects those previously identified deficiencies and provides the best investment for the State in establishing a 20-year design life solution<sup>2</sup>.

As per OHP Policy 1F, the ability to meet OHP mobility targets may not be consistent with a city's land use plan or their goals. In these cases, the study outcomes should reflect significant collaboration between the community, affected agencies, and partners to identify a balance of multimodal investments needed to support the community through the 20-year planning horizon. In some cases, as with this study, this may result in a choice to not add capacity to major roadways due to the desire to balance capacity with other community priorities such as safety, land use, financial limitations, or engineering design feasibility. As such, it is appropriate to consider adjusting long-term roadway performance expectations through the adoption of alternative standards or mobility targets. While this outcome does not "solve" projected congestion issues, it does align investments strategies with the community-supported vision.

In addition to establishing realistic expectations for future system performance, this process will help reduce the potential for state and local investment needs in the 20-year planning horizon by not continuing to require compliance with standards or targets that both parties acknowledge cannot likely be achieved, assuming that the community continues to grow in accordance with its existing, adopted land use plan.

A key note regarding mobility targets for State highways is that targets in the OHP relate to evaluations for development review processes or TPR compliance. Alternative mobility targets would modify the OHP targets for a facility. The design standards in HDM would not be changed with an alternative mobility target. However, adopting alternative mobility targets can be helpful in requesting design exceptions during project development.

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<sup>1</sup> 1999 Oregon Highway Plan, as amended May 2015, Policy 1F: Highway Mobility Policy, Oregon Department of Transportation

<sup>2</sup> ODOT Highway Design Manual Part 1200, January 2023, Oregon Department of Transportation

## CURRENT MOBILITY TARGETS

Currently, the study intersections along US 20 in Bend are required to comply with the v/c ratio-based mobility targets in Table 6 of the OHP. The mobility targets are based on the highway classification and area type. In Bend, US 20 falls under the classification of Statewide Highway and is also designated as a Freight Route. For signalized intersections within an MPO and Urban Growth Boundary (UGB), the maximum v/c target is set at 0.85. For two-way stopped controlled intersections (TWSC) the maximum v/c target is also 0.85 for the major street but 0.95 for the minor street. The Hamby Road intersection has a mobility target of 0.70, as it is located outside of the UGB. For TWSC intersections outside of the UGB the maximum v/c target is 0.70 for the major street and 0.75 for the minor street. The mobility targets in the OHP are based on conditions during the 30<sup>th</sup> highest annual hour of traffic (30 HV). In Bend, the 30 HV typically occurs during the summer months, when traffic volumes increase due to an influx of vacationers and visitors, leading to a significant increase in traffic over average weekday (AWD) conditions, typically from a 5 percent to 40 percent increase in some areas.

The HDM mobility standards are also based on highway classification and area type. Signalized intersections within the UGB have mobility standards of 0.75 and the intersection of Hamby Road (located outside of UGB) has a standard of 0.60. It should be noted that any new improvement within the area must meet these design standards unless a design exception is approved.

The US 97 Bend Parkway Plan included an Alternative Mobility Target evaluation of the US 20 corridor.<sup>3</sup> This prior analysis was based on older traffic data and a now outdated version of the Bend-Redmond Model (BRM) which did not account for the most recent development and projected land use growth along and around the US 20 corridor. This alternative mobility target analysis will update the findings from the Parkway Plan using the most recent available traffic data and growth assumptions.

## FACTORS LIMITING THE ABILITY TO MEET EXISTING MOBILITY TARGETS

In Bend there is a significant amount of population and employment growth projected over the 20-year planning horizon. Transportation analysis forecasts that congestion levels on portions of US 20 within the study area will exceed desired limits defined by ODOT's current mobility targets by the end of the 20-year planning horizon. Several factors combine to make compliance with the current mobility targets within Bend difficult, as described in the following sections.

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<sup>3</sup> US 97 Bend Parkway Alternative Mobility Targets Memorandum (Feb. 2021)  
<https://www.bendoregon.gov/home/showpublisheddocument/48889/637487268945430000>

## PROJECTED MULTIMODAL TRAVEL NEEDS

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The importance of US 20 to statewide, regional, and local travel creates significant multimodal demands for both short and long trips along the corridor. These users include:

- People driving taking advantage of the higher speeds to make local trips to home, work, or shopping
- People driving making regional trips to Bend or between cities (including between Albany, Sisters, Tumalo, Burns, and other Eastern Oregon destinations)
- Freight traveling to and through Bend
- Transit traveling along the main state facility or crossing at a local street
- People biking and walking along and across US 20

Balancing the needs of each of these various users was a key factor in discussions and decisions in evaluating scenarios and identifying recommended projects.

## EXISTING AND PLANNED DEVELOPMENT PATTERNS

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In many areas along US 20, adjacent existing development and planned urban form promoting increased density and mixed-land use constrains the ability to widen the highway right-of-way or provide parallel alternative routes. Obtaining the needed right-of-way for highway widening would require acquisition and removal of such development, which would be very expensive and undesirable to the community.

## FINANCIAL FACTORS

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As is true for most agencies, funding for transportation improvements is limited and constrains the ability of Bend and ODOT to fund highway capacity improvements. Therefore, the US 20 Bend Facility Plan includes cost effective, realistic solutions for five identified intersections along the corridor to prioritize for improvement<sup>4</sup>. However, there are remaining facility mobility target performance deficiencies that could not be addressed within the funding constraints. The improvements that were assumed to be most feasible and fundable were assumed in this analysis, including:

- US 20 & 3<sup>rd</sup> Street - primarily pedestrian, bicycle, and transit improvements including westbound right-turn overlap phase with a right-turn-on-red restriction
- US 20 & Dean Swift Road - add concrete island to north and south legs for right-in, right-out channelization
- US 20 & Purcell Boulevard - add an exclusive northbound right turn lane, bicycle signal, and increase cycle length

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<sup>4</sup> US 20 Bend Facility Plan – Technical Memorandum #7 Second Level Screening Proposed Alternatives (Mar, 2024)

[https://www.oregon.gov/odot/projects/pages/project-](https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=00006#:~:text=The%20U.S.%20%20Bend%20Facility%20Plan%20will%20identify%20strategies%20to,bike%20and%20use%20public%20transit.)

[details.aspx?project=00006#:~:text=The%20U.S.%20%20Bend%20Facility%20Plan%20will%20identify%20strategies%20to,bike%20and%20use%20public%20transit.](https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=00006#:~:text=The%20U.S.%20%20Bend%20Facility%20Plan%20will%20identify%20strategies%20to,bike%20and%20use%20public%20transit.)

- US 20 & 27<sup>th</sup> Street - add an eastbound right turn lane with a raised crosswalk and right turn bypass island

Even with some of these improvements, the existing mobility targets are likely not to be met by 2042 (discussed in more detail in the following section). Therefore, there is a need to adopt alternative mobility targets for the study intersections to adjust the long-term performance expectations along the study corridor.

## NEED FOR ALTERNATIVE MOBILITY TARGETS IN BEND

An evaluation of the disparity between the current targets and forecasted traffic operations (summarized below in Table 1) confirmed the need for assessing the potential to mitigate conditions through other means. As listed in Table 1, three (out of 13) study intersections along the US 20 corridor would fail to comply with existing mobility targets under existing (2022) conditions. Given the increased growth in Bend over the 20-year planning horizon, traffic demand in the summer weekday p.m. peak period is forecast to exceed capacity at many intersections by 2042. An additional five study intersections are projected to fail to meet mobility targets in the future (2042) with no improvements. With the recommended improvements that were identified as most feasible and fundable within the planning horizon, a total of 7 intersections are expected to fail to meet mobility targets.

TABLE 1. FUTURE (2042) DESIGN HOUR INTERSECTION OPERATIONS ANALYSIS SUMMARY

| INTERSECTION                       | CONTROL    | MOBILITY TARGET <sup>a</sup> (V/C) |                  | EXISTING (2022)      |     |                    | FUTURE NO-BUILD (2042) |     |                    | FUTURE BUILD (2042) |     |             |
|------------------------------------|------------|------------------------------------|------------------|----------------------|-----|--------------------|------------------------|-----|--------------------|---------------------|-----|-------------|
|                                    |            | OHP                                | HDM <sub>b</sub> | V/C                  | LOS | DELAY (SEC)        | V/C                    | LOS | DELAY (SEC)        | V/C                 | LOS | DELAY (SEC) |
| US 20 & 3 <sup>RD</sup> ST*        | Signalized | 0.85                               | 0.75             | <b>0.89</b>          | E   | 68                 | <b>1.06</b>            | F   | 106                | <b>1.18</b>         | F   | 117         |
| US 20 & 4 <sup>TH</sup> ST         | TWSC       | 0.85/0.95                          | -                | 0.31/0.38            | B/C | 12/18              | 0.35/0.60              | B/D | 14/28              | 0.35/0.60           | B/D | 14/28       |
| US 20 & 6 <sup>TH</sup> ST         | TWSC       | 0.85/0.95                          | -                | 0.40/0.08            | A/C | 0/15               | 0.48/0.10              | A/C | 0/17               | 0.48/0.10           | A/C | 0/17        |
| US 20 & 8 <sup>TH</sup> ST         | Signalized | 0.85                               | 0.75             | <b>0.98</b>          | E   | 57                 | <b>1.17</b>            | F   | 73                 | <b>1.17</b>         | E   | 73          |
| US 20 & 15 <sup>TH</sup> ST        | Signalized | 0.85                               | -                | 0.71                 | B   | 16                 | <b>0.91</b>            | C   | 26                 | <b>0.92</b>         | C   | 26          |
| US 20 & DEAN SWIFT RD*             | TWSC       | 0.85/0.95                          | -                | 0.38/ <b>&gt;2.0</b> | C/F | 15/ <b>&gt;300</b> | 0.46/ <b>&gt;2.0</b>   | C/F | 23/ <b>&gt;300</b> | 0.59/0.65           | C/E | 23/39       |
| US 20 & PURCELL BLVD*              | Signalized | 0.85                               | 0.75             | 0.82                 | D   | 45                 | <b>1.05</b>            | F   | 81                 | <b>0.92</b>         | E   | 61          |
| US 20 & WINDY KNOLLS DR            | TWSC       | 0.85/0.95                          | -                | 0.34/0.52            | B/D | 13/32              | 0.45/0.86              | C/F | 20/91              | 0.45/0.87           | C/F | 20/91       |
| US 20 & 27 <sup>TH</sup> ST*       | Signalized | 0.85                               | 0.75             | 0.83                 | D   | 52                 | <b>1.24</b>            | F   | 136                | <b>1.18</b>         | F   | 111         |
| US 20 & BENSON WAY                 | TWSC       | 0.85/0.95                          | -                | 0.20/0.83            | B/F | 10/86              | 0.22/ <b>1.27</b>      | B/F | 11/244             | 0.22/ <b>1.27</b>   | B/F | 11/244      |
| US 20 & HAMBY RD                   | Roundabout | 0.70                               | 0.60             | 0.75 (west)          | C   | 15                 | <b>1.23</b> (west)     | F   | 103                | <b>1.23</b> (west)  | F   | 103         |
| US 20 & ERICKSON RD / TORKELSON RD | TWSC       | 0.70/0.75                          | -                | 0.39/0.11            | A/D | 9/26               | 0.42/0.58              | A/F | 10/94              | 0.42/0.58           | A/F | 10/78       |
| US 20 & POWELL BUTTE HWY           | TWSC       | 0.70/0.75                          | -                | 0.27/0.57            | A/D | 9/34               | 0.37/0.63              | A/F | 9/64               | 0.37/0.63           | A/F | 9/64        |

**Bold and Red** indicate failure to meet mobility target (under Design Hour operations); TWSC = two-way stop-control

\*Note: Preferred build alternatives identified at intersection and were assumed in this alternative mobility target analysis. Other intersections not starred may have had recommended improvements detailed in the US 20 Technical Memorandum #7 – Second Level Screening.

<sup>a</sup> For signalized intersections, mobility target and results reported as overall intersection; For TWSC intersections, mobility target and results reported as major street/minor street; For roundabout, mobility target and results reported as the worst leg.

<sup>b</sup> HDM mobility targets are only used for future study intersections with preferred alternative(s).

## ALTERNATIVE MOBILITY TARGET EVALUATION

Figure 1 shows the ODOT methodology for determining alternative mobility targets. A summary of each step under consideration at this time (Steps 1 through 4) is discussed below, and Table 2 lists the results for each individual intersection. In addition to the steps outlined below, additional considerations could be taken when determining alternative mobility targets to ensure other goals and objectives continue to be addressed (such as safety, equity, economic vitality, etc.).

### STEP 1: IMPLEMENT RECOMMENDED FEASIBLE IMPROVEMENTS

With the implementation of the recommended improvements determined to be feasible by ODOT, only six of the 13 study intersections along US 20 are forecast to meet existing mobility targets. Alternative mobility targets would be needed for the remaining intersections.

### STEP 2: INCREASE V/C TARGETS

Step 2 maintains the same methodology as in Step 1 (using 30 HV) but raises the v/c target from 0.85 to 1.0. In this case, nine of the 13 study intersections along US 20 are forecast to have a v/c ratio less than 1.0 under 30 HV conditions.

### STEP 3: REMOVE PEAKING

Setting the peak hour factor (PHF) to 1.0 relaxes the peaking assumptions and allows for analysis of the peak hour volumes instead of the peak 15-minute volumes. With a PHF of 1.0, ten of the 13 study intersections would have a v/c ratio of 1.0 or less.

### STEP 4: ANALYZE AVERAGE WEEKDAY CONDITIONS

Step 4 analyzes average weekday (AWD) conditions instead of 30 HV conditions. In Bend, the 30 HV volumes range anywhere from roughly five to 40 percent higher than AWD volumes. The City of Bend uses an average weekday mobility target on City facilities. Analyzing AWD conditions instead of the 30 HV gives a more accurate representation of typical conditions instead of peak summer conditions when there is an influx of visitors in Bend. Using AWD volumes with peaking factors, all 13 study intersections on US 20 are forecast to operate with a v/c ratio of 1.0 or less.

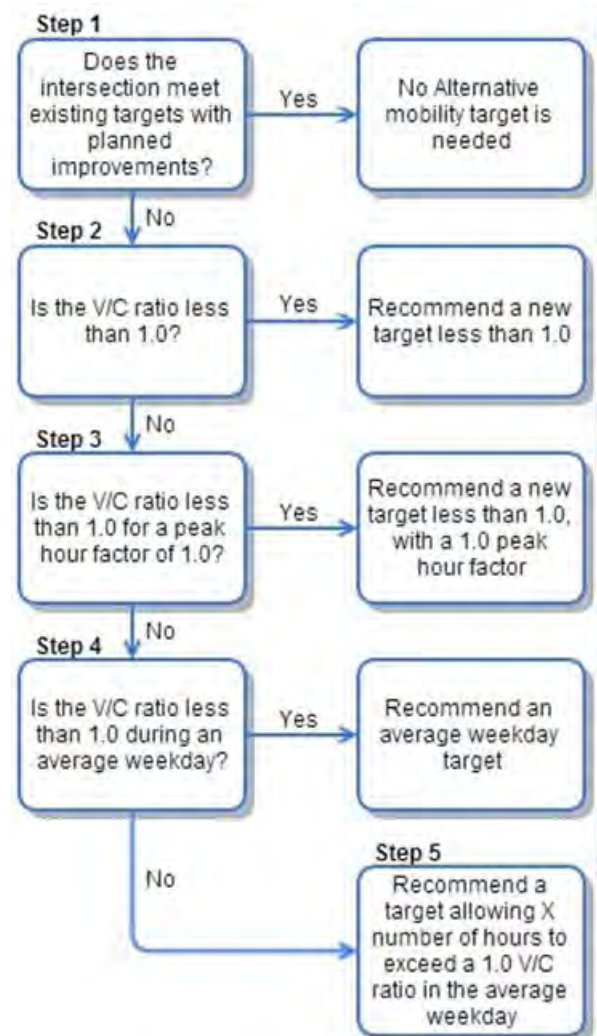


FIGURE 1: ALTERNATIVE MOBILITY TARGET PROCESS

TABLE 2: US 20 ALTERNATIVE MOBILITY TARGET EVALUATION RESULTS (2042 PM PEAK HOUR)

| Intersection                        | Int. Control | Existing Mobility Target <sup>a</sup> (V/C) | Step 1:<br>30 HV, with Recommended Improvements | Step 2:<br>30 HV, V/C ≤ 1.0 | Step 3:<br>30 HV, PHF=1.0, V/C ≤ 1.0 | Step 4:<br>AWD <sup>b</sup> , V/C ≤ 1.0 |
|-------------------------------------|--------------|---------------------------------------------|-------------------------------------------------|-----------------------------|--------------------------------------|-----------------------------------------|
| US 20 & 3 <sup>RD</sup> ST*         | Signalized   | 0.85                                        | <b>1.18</b>                                     | <b>1.18</b>                 | <b>1.10</b>                          | 0.97                                    |
| US 20 & 4 <sup>TH</sup> ST          | TWSC         | 0.85/0.95                                   | 0.35/0.60                                       | 0.35/0.60                   | 0.33/0.51                            | 0.29/0.41                               |
| US 20 & 6 <sup>TH</sup> ST          | TWSC         | 0.85/0.95                                   | 0.48/0.10                                       | 0.48/0.10                   | 0.44/0.09                            | 0.39/0.07                               |
| US 20 & 8 <sup>TH</sup> ST          | Signalized   | 0.85                                        | <b>1.17</b>                                     | <b>1.17</b>                 | <b>1.09</b>                          | 0.96                                    |
| US 20 & 15 <sup>TH</sup> ST         | Signalized   | 0.85                                        | <b>0.92</b>                                     | 0.92                        | 0.89                                 | 0.76                                    |
| US 20 & DEAN SWIFT RD*              | TWSC         | 0.85/0.95                                   | 0.59/0.65                                       | 0.59/0.65                   | 0.54/0.53                            | 0.48/0.41                               |
| US 20 & PURCELL BLVD*               | Signalized   | 0.85                                        | <b>0.92</b>                                     | 0.92                        | 0.87                                 | 0.74                                    |
| US 20 & WINDY KNOLLS DR             | TWSC         | 0.85/0.95                                   | 0.45/0.87                                       | 0.45/0.87                   | 0.42/0.75                            | 0.37/0.50                               |
| US 20 & 27 <sup>TH</sup> ST*        | Signalized   | 0.85                                        | <b>1.18</b>                                     | <b>1.18</b>                 | <b>1.15</b>                          | 0.98                                    |
| US 20 & BENSON WAY                  | TWSC         | 0.85/0.95                                   | 0.22/ <b>1.27</b>                               | 0.22/ <b>1.27</b>           | 0.21/0.98                            | 0.19/0.62                               |
| US 20 & HAMBY RD                    | Roundabout   | 0.85                                        | <b>1.23</b> (west)                              | <b>1.23</b> (west)          | <b>1.07</b> (west)                   | 0.92 (west)                             |
| US 20 & ERICKSON RD / TORKELSON RD  | TWSC         | 0.70/0.75                                   | 0.42/0.48                                       | 0.42/0.48                   | 0.39/0.41                            | 0.35/0.32                               |
| US 20 & POWELL BUTTE HWY            | TWSC         | 0.70/0.75                                   | 0.37/0.63                                       | 0.37/0.63                   | 0.33/0.55                            | 0.29/0.49                               |
| US 20 Intersections meeting targets |              |                                             | Step 1:<br>6 / 13                               | Step 2:<br>8 / 13           | Step 3:<br>9 / 13                    | Step 4:<br>13 / 13                      |

**Bold and Red** indicate failure to meet mobility target (under applicable step); TWSC = two-way stop-control

\*Note: Preferred build alternatives identified at intersection and were assumed in this alternative mobility target analysis. Other intersections not starred may have had recommended improvements detailed in the US 20 Technical Memorandum #7 – Second Level Screening.

<sup>a</sup> For signalized intersections, mobility target and results reported as overall intersection; For TWSC intersections, mobility target and results reported as major street/minor street; For roundabout, mobility target and results reported as the worst leg.

<sup>b</sup> Average weekday conditions assessed with peaking factors from the baseline future year model.

## SUMMARY OF FINDINGS

While the major investments recommended through the US 20 Bend Facility Plan and identified as reasonably likely to be funded in the Bend TSP, will result in improved intersection performance on ODOT facilities, not all intersections will be able to meet State mobility targets as assessed in Step 1, and there is a need to consider alternative mobility targets at certain study intersections to be compliant with mobility targets.

Given the role that this segment of US 20 has within the community, region, and state, the following considerations should be taken when selecting alternative mobility targets:

- Eight of the 13 study intersections along US 20 are forecast to operate with a v/c less than 1.0 under 30 HV conditions in the future year of 2042 with preferred alternative improvements in place at four intersections and with peaking factors (Step 2). Without peaking factors, the same study intersections plus an additional intersection without improvements (Benson Way) are forecast to operate with a v/c less than 1.0 in the future (Step 3).
- Two of the intersections that do not operate with a v/c less than 1.0 under 30 HV conditions without peaking factors, US 20 at 3<sup>rd</sup> Street and 8<sup>th</sup> Street, are located within the Bend Core Area (Bend Central District and Inner Highway 20/Greenwood Opportunity Areas). The implementation plan for this area entails updating street and mobility standards to prioritize non-motorized travelers.<sup>5</sup>
- Under average weekday conditions, all the study intersections would operate with a v/c less than 1.0 in the future year of 2042 with preferred alternative improvements in place and with peaking factors (Step 4).
- Therefore, an alternative mobility target for US 20 in Bend could consider:
  - Establishing average weekday mobility targets for this segment of US 20, consistent with the City's standards.
  - Establishing a boundary in the Bend Core area where peak hour motor vehicle mobility targets are not applied to better balance the goals in the TSP (instead relying upon safety, complete multimodal facilities, etc.). This could mirror a Multimodal Mixed Use Area approach to support the integrated land use and transportation planning in this core redevelopment area.
  - Setting a 30 HV (with no peak hour factors) target of 1.0 outside of the Bend Core Area (e.g., east of 10<sup>th</sup> Street).
  - Establishing targets or policies for other performance factors such as safety, equity, economic vitality, or multimodal mobility, consistent with the Bend TSP Goals and Policies.

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<sup>5</sup> City of Bend Core Area Project Report (May 2020) full access online:  
<https://www.bendoregon.gov/home/showpublisheddocument/46256/637285224852600000>

# APPENDIX

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## **APPENDIX A: FUTURE (2042) BASELINE CONDITIONS - STEP 1**

HCM 6th Signalized Intersection Summary  
1: NE 3rd St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Future Volume (veh/h)        | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| 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       | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                              | 1870                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 376                                                                               | 882                                                                               | 252                                                                               | 263                                                                               | 753                                                                               | 237                                                                               | 215                                                                                 | 726                                                                                 | 234                                                                                 | 323                                                                                 | 849                                                                                 | 150                                                                                 |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 2                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 351                                                                               | 844                                                                               | 241                                                                               | 256                                                                               | 687                                                                               | 216                                                                               | 224                                                                                 | 676                                                                                 | 218                                                                                 | 301                                                                                 | 915                                                                                 | 162                                                                                 |
| Arrive On Green              | 0.19                                                                              | 0.31                                                                              | 0.31                                                                              | 0.14                                                                              | 0.26                                                                              | 0.26                                                                              | 0.13                                                                                | 0.26                                                                                | 0.26                                                                                | 0.17                                                                                | 0.30                                                                                | 0.30                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 2756                                                                              | 786                                                                               | 1781                                                                              | 2683                                                                              | 844                                                                               | 1795                                                                                | 2639                                                                                | 851                                                                                 | 1781                                                                                | 3051                                                                                | 539                                                                                 |
| Grp Volume(v), veh/h         | 376                                                                               | 577                                                                               | 557                                                                               | 263                                                                               | 507                                                                               | 483                                                                               | 215                                                                                 | 493                                                                                 | 467                                                                                 | 323                                                                                 | 502                                                                                 | 497                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1805                                                                              | 1738                                                                              | 1781                                                                              | 1805                                                                              | 1722                                                                              | 1795                                                                                | 1791                                                                                | 1699                                                                                | 1781                                                                                | 1805                                                                                | 1786                                                                                |
| Q Serve(g_s), s              | 31.0                                                                              | 49.0                                                                              | 49.0                                                                              | 23.0                                                                              | 41.0                                                                              | 41.0                                                                              | 19.0                                                                                | 41.0                                                                                | 41.0                                                                                | 27.0                                                                                | 43.2                                                                                | 43.2                                                                                |
| Cycle Q Clear(g_c), s        | 31.0                                                                              | 49.0                                                                              | 49.0                                                                              | 23.0                                                                              | 41.0                                                                              | 41.0                                                                              | 19.0                                                                                | 41.0                                                                                | 41.0                                                                                | 27.0                                                                                | 43.2                                                                                | 43.2                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.45                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                                |                                                                                     | 0.50                                                                                | 1.00                                                                                |                                                                                     | 0.30                                                                                |
| Lane Grp Cap(c), veh/h       | 351                                                                               | 553                                                                               | 532                                                                               | 256                                                                               | 463                                                                               | 441                                                                               | 224                                                                                 | 459                                                                                 | 435                                                                                 | 301                                                                                 | 542                                                                                 | 536                                                                                 |
| V/C Ratio(X)                 | 1.07                                                                              | 1.04                                                                              | 1.05                                                                              | 1.03                                                                              | 1.10                                                                              | 1.10                                                                              | 0.96                                                                                | 1.07                                                                                | 1.07                                                                                | 1.07                                                                                | 0.93                                                                                | 0.93                                                                                |
| Avail Cap(c_a), veh/h        | 351                                                                               | 553                                                                               | 532                                                                               | 256                                                                               | 463                                                                               | 441                                                                               | 224                                                                                 | 459                                                                                 | 435                                                                                 | 301                                                                                 | 542                                                                                 | 536                                                                                 |
| 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     | 64.5                                                                              | 55.5                                                                              | 55.5                                                                              | 68.5                                                                              | 59.5                                                                              | 59.5                                                                              | 69.6                                                                                | 59.5                                                                                | 59.5                                                                                | 66.5                                                                                | 54.3                                                                                | 54.3                                                                                |
| Incr Delay (d2), s/veh       | 68.7                                                                              | 50.2                                                                              | 51.7                                                                              | 63.4                                                                              | 70.2                                                                              | 71.2                                                                              | 47.8                                                                                | 63.1                                                                                | 64.2                                                                                | 73.1                                                                                | 22.3                                                                                | 22.5                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 21.1                                                                              | 30.1                                                                              | 29.2                                                                              | 15.1                                                                              | 27.9                                                                              | 26.7                                                                              | 11.7                                                                                | 26.5                                                                                | 25.3                                                                                | 18.3                                                                                | 22.8                                                                                | 22.6                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 133.2                                                                             | 105.7                                                                             | 107.2                                                                             | 131.9                                                                             | 129.7                                                                             | 130.7                                                                             | 117.4                                                                               | 122.6                                                                               | 123.7                                                                               | 139.6                                                                               | 76.7                                                                                | 76.8                                                                                |
| LnGrp LOS                    | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | E                                                                                   | E                                                                                   |
| Approach Vol, veh/h          | 1510                                                                              |                                                                                   |                                                                                   | 1253                                                                              |                                                                                   |                                                                                   | 1175                                                                                |                                                                                     |                                                                                     | 1322                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 113.1                                                                             |                                                                                   |                                                                                   | 130.6                                                                             |                                                                                   |                                                                                   | 122.1                                                                               |                                                                                     |                                                                                     | 92.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 25.0                                                                              | 53.0                                                                              | 36.0                                                                              | 46.0                                                                              | 32.0                                                                              | 46.0                                                                              | 28.0                                                                                | 54.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 20.0                                                                              | 48.0                                                                              | 31.0                                                                              | 41.0                                                                              | 27.0                                                                              | 41.0                                                                              | 23.0                                                                                | 49.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 21.0                                                                              | 45.2                                                                              | 33.0                                                                              | 43.0                                                                              | 29.0                                                                              | 43.0                                                                              | 25.0                                                                                | 51.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    | 114.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 4.1                                                                               |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT  | NBR                                                                               | SBL  | SBT  | SBR                                                                                 |
| Lane Configurations      |  |  |      |  |  |      |      |      |  |      |      |  |
| Traffic Vol, veh/h       | 50                                                                                | 1295                                                                              | 20   | 65                                                                                | 980                                                                               | 130  | 0    | 0    | 210                                                                               | 0    | 0    | 220                                                                                 |
| Future Vol, veh/h        | 50                                                                                | 1295                                                                              | 20   | 65                                                                                | 980                                                                               | 130  | 0    | 0    | 210                                                                               | 0    | 0    | 220                                                                                 |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 1    | 1                                                                                 | 0                                                                                 | 1    | 2    | 0    | 0                                                                                 | 0    | 0    | 2                                                                                   |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -    | None                                                                              | -    | -    | None                                                                                |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 100                                                                               | -                                                                                 | -    | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Peak Hour Factor         | 93                                                                                | 93                                                                                | 93   | 93                                                                                | 93                                                                                | 93   | 93   | 93   | 93                                                                                | 93   | 93   | 93                                                                                  |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 5    | 2                                                                                 | 1                                                                                 | 0    | 0    | 0    | 1                                                                                 | 0    | 0    | 0                                                                                   |
| Mvmt Flow                | 54                                                                                | 1392                                                                              | 22   | 70                                                                                | 1054                                                                              | 140  | 0    | 0    | 226                                                                               | 0    | 0    | 237                                                                                 |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      | Minor2 |   |     |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|-----|
| Conflicting Flow All | 1195   | 0 | 0 | 1415   | 0 | 0 | -      | - | 708  | -      | - | 600 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy        | 4.1    | - | - | 4.14   | - | - | -      | - | 6.92 | -      | - | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.22   | - | - | -      | - | 3.31 | -      | - | 3.3 |
| Pot Cap-1 Maneuver   | 591    | - | - | 478    | - | - | 0      | 0 | 379  | 0      | 0 | 449 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Mov Cap-1 Maneuver   | 590    | - | - | 478    | - | - | -      | - | 379  | -      | - | 448 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s/v | 0.4 |  |  | 0.8 |  |  | 27.6 |  |  | 21.7 |  |  |
| HCM LOS                |     |  |  |     |  |  | D    |  |  | C    |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 379   | 590   | -   | -   | 478   | -   | -   | 448   |
| HCM Lane V/C Ratio        | 0.596 | 0.091 | -   | -   | 0.146 | -   | -   | 0.528 |
| HCM Control Delay (s/veh) | 27.6  | 11.7  | -   | -   | 13.8  | -   | -   | 21.7  |
| HCM Lane LOS              | D     | B     | -   | -   | B     | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 3.7   | 0.3   | -   | -   | 0.5   | -   | -   | 3     |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Future Vol, veh/h        | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Conflicting Peds, #/hr   | 1    | 0    | 5    | 5    | 0    | 1    | 4    | 0    | 0    | 0    | 0    | 4    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1602 | 16   | 0    | 1204 | 27   | 0    | 0    | 32   | 0    | 0    | 59   |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |     |
|----------------------|--------|---|--------|---|--------|---|--------|-----|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | 814 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9 |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -   |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3 |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 325 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -   |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 323 |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -   |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |

| Approach               | EB | WB | NB   | SB   |
|------------------------|----|----|------|------|
| HCM Control Delay, s/v | 0  | 0  | 17.4 | 14.6 |
| HCM LOS                |    |    | C    | B    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 323   | -   | -   | -   | -   | 433   |
| HCM Lane V/C Ratio        | 0.1   | -   | -   | -   | -   | 0.137 |
| HCM Control Delay (s/veh) | 17.4  | -   | -   | -   | -   | 14.6  |
| HCM Lane LOS              | C     | -   | -   | -   | -   | B     |
| HCM 95th %tile Q (veh)    | 0.3   | -   | -   | -   | -   | 0.5   |

# HCM 6th Signalized Intersection Summary

## 4: NE 8th St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 145                                                                               | 1305                                                                              | 55                                                                                | 250                                                                               | 1015                                                                              | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Future Volume (veh/h)        | 145                                                                               | 1305                                                                              | 55                                                                                | 250                                                                               | 1015                                                                              | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                                | 1885                                                                                | 1900                                                                                | 1900                                                                                | 1885                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 156                                                                               | 1403                                                                              | 56                                                                                | 269                                                                               | 1091                                                                              | 211                                                                               | 65                                                                                  | 306                                                                                 | 135                                                                                 | 382                                                                                 | 457                                                                                 | 70                                                                                  |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 207                                                                               | 1402                                                                              | 56                                                                                | 211                                                                               | 1265                                                                              | 244                                                                               | 165                                                                                 | 256                                                                                 | 113                                                                                 | 316                                                                                 | 487                                                                                 | 75                                                                                  |
| Arrive On Green              | 0.06                                                                              | 0.40                                                                              | 0.40                                                                              | 0.08                                                                              | 0.43                                                                              | 0.43                                                                              | 0.04                                                                                | 0.21                                                                                | 0.21                                                                                | 0.14                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3505                                                                              | 140                                                                               | 1810                                                                              | 2977                                                                              | 573                                                                               | 1810                                                                                | 1228                                                                                | 542                                                                                 | 1810                                                                                | 1592                                                                                | 244                                                                                 |
| Grp Volume(v), veh/h         | 156                                                                               | 715                                                                               | 744                                                                               | 269                                                                               | 654                                                                               | 648                                                                               | 65                                                                                  | 0                                                                                   | 441                                                                                 | 382                                                                                 | 0                                                                                   | 527                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1854                                                                              | 1810                                                                              | 1791                                                                              | 1759                                                                              | 1810                                                                                | 0                                                                                   | 1770                                                                                | 1810                                                                                | 0                                                                                   | 1835                                                                                |
| Q Serve(g_s), s              | 6.1                                                                               | 47.9                                                                              | 48.0                                                                              | 10.0                                                                              | 39.7                                                                              | 40.2                                                                              | 3.3                                                                                 | 0.0                                                                                 | 25.0                                                                                | 17.0                                                                                | 0.0                                                                                 | 33.6                                                                                |
| Cycle Q Clear(g_c), s        | 6.1                                                                               | 47.9                                                                              | 48.0                                                                              | 10.0                                                                              | 39.7                                                                              | 40.2                                                                              | 3.3                                                                                 | 0.0                                                                                 | 25.0                                                                                | 17.0                                                                                | 0.0                                                                                 | 33.6                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.08                                                                              | 1.00                                                                              |                                                                                   | 0.33                                                                              | 1.00                                                                                |                                                                                     | 0.31                                                                                | 1.00                                                                                |                                                                                     | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 207                                                                               | 716                                                                               | 742                                                                               | 211                                                                               | 761                                                                               | 747                                                                               | 165                                                                                 | 0                                                                                   | 369                                                                                 | 316                                                                                 | 0                                                                                   | 561                                                                                 |
| V/C Ratio(X)                 | 0.75                                                                              | 1.00                                                                              | 1.00                                                                              | 1.28                                                                              | 0.86                                                                              | 0.87                                                                              | 0.39                                                                                | 0.00                                                                                | 1.20                                                                                | 1.21                                                                                | 0.00                                                                                | 0.94                                                                                |
| Avail Cap(c_a), veh/h        | 207                                                                               | 716                                                                               | 742                                                                               | 211                                                                               | 761                                                                               | 747                                                                               | 176                                                                                 | 0                                                                                   | 369                                                                                 | 316                                                                                 | 0                                                                                   | 561                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.4                                                                              | 36.0                                                                              | 36.0                                                                              | 35.9                                                                              | 31.3                                                                              | 31.4                                                                              | 36.9                                                                                | 0.0                                                                                 | 47.5                                                                                | 35.5                                                                                | 0.0                                                                                 | 40.6                                                                                |
| Incr Delay (d2), s/veh       | 13.7                                                                              | 33.3                                                                              | 33.7                                                                              | 155.7                                                                             | 10.4                                                                              | 11.1                                                                              | 1.1                                                                                 | 0.0                                                                                 | 111.8                                                                               | 119.3                                                                               | 0.0                                                                                 | 23.8                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.3                                                                               | 26.7                                                                              | 27.8                                                                              | 12.5                                                                              | 18.7                                                                              | 18.7                                                                              | 1.5                                                                                 | 0.0                                                                                 | 22.5                                                                                | 17.8                                                                                | 0.0                                                                                 | 18.5                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 41.1                                                                              | 69.2                                                                              | 69.7                                                                              | 191.7                                                                             | 41.6                                                                              | 42.5                                                                              | 38.0                                                                                | 0.0                                                                                 | 159.3                                                                               | 154.8                                                                               | 0.0                                                                                 | 64.4                                                                                |
| LnGrp LOS                    | D                                                                                 | E                                                                                 | F                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | D                                                                                   |                                                                                     | F                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 1615                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1571                                                                              |                                                                                     | 506                                                                                 |                                                                                     | 909                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 66.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 67.7                                                                              |                                                                                     | 143.7                                                                               |                                                                                     | 102.4                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | E                                                                                 |                                                                                     | F                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 53.0                                                                              | 10.3                                                                              | 41.7                                                                              | 12.0                                                                              | 56.0                                                                              | 22.0                                                                                | 30.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 10.0                                                                              | 48.0                                                                              | 6.0                                                                               | 36.0                                                                              | 7.0                                                                               | 51.0                                                                              | 17.0                                                                                | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 12.0                                                                              | 50.0                                                                              | 5.3                                                                               | 35.6                                                                              | 8.1                                                                               | 42.2                                                                              | 19.0                                                                                | 27.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               | 6.7                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 82.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary 5: SE 15th St & US 20

Future PM Peak 30HV  
12/23/2024



| Movement                      | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL     | SBT  | SBR  |
|-------------------------------|------|------|------|-------|------|------|------|------|------|---------|------|------|
| Lane Configurations           |      | ↑↑   | ↗    | ↖     | ↑↑   |      | ↖    |      | ↗    |         | ↕    |      |
| Traffic Volume (veh/h)        | 0    | 1710 | 315  | 230   | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Future Volume (veh/h)         | 0    | 1710 | 315  | 230   | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0       | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.97 | 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        | 0    | 1885 | 1900 | 1900  | 1885 | 0    | 1900 | 0    | 1900 | 1870    | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 0    | 1781 | 268  | 240   | 1365 | 0    | 312  | 0    | 69   | 0       | 0    | 0    |
| Peak Hour Factor              | 0.92 | 0.96 | 0.96 | 0.96  | 0.96 | 0.92 | 0.96 | 0.92 | 0.96 | 0.92    | 0.92 | 0.92 |
| Percent Heavy Veh, %          | 0    | 1    | 0    | 0     | 1    | 0    | 0    | 0    | 0    | 2       | 2    | 2    |
| Cap, veh/h                    | 0    | 1810 | 790  | 229   | 2468 | 0    | 355  | 0    | 0    | 0       | 2    | 0    |
| Arrive On Green               | 0.00 | 0.51 | 0.51 | 0.13  | 0.69 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00    | 0.00 | 0.00 |
| Sat Flow, veh/h               | 0    | 3676 | 1562 | 1810  | 3676 | 0    | 1810 | 312  |      | 0-84166 |      | 0    |
| Grp Volume(v), veh/h          | 0    | 1781 | 268  | 240   | 1365 | 0    | 312  | 44.5 |      | 0       | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln      | 0    | 1791 | 1562 | 1810  | 1791 | 0    | 1810 | D    |      | 0       | 1870 | 0    |
| Q Serve(g_s), s               | 0.0  | 42.6 | 8.9  | 11.0  | 16.7 | 0.0  | 14.6 |      |      | 0.0     | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s         | 0.0  | 42.6 | 8.9  | 11.0  | 16.7 | 0.0  | 14.6 |      |      | 0.0     | 0.0  | 0.0  |
| Prop In Lane                  | 0.00 |      | 1.00 | 1.00  |      | 0.00 | 1.00 |      |      | 0.00    |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 0    | 1810 | 790  | 229   | 2468 | 0    | 355  |      |      | 0       | 2    | 0    |
| V/C Ratio(X)                  | 0.00 | 0.98 | 0.34 | 1.05  | 0.55 | 0.00 | 0.88 |      |      | 0.00    | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h         | 0    | 1810 | 790  | 229   | 2468 | 0    | 520  |      |      | 0       | 387  | 0    |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 |      |      | 1.00    | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.00 | 1.00 | 1.00 | 1.00  | 1.00 | 0.00 | 1.00 |      |      | 0.00    | 0.00 | 0.00 |
| Uniform Delay (d), s/veh      | 0.0  | 21.2 | 12.9 | 38.0  | 6.8  | 0.0  | 34.0 |      |      | 0.0     | 0.0  | 0.0  |
| Incr Delay (d2), s/veh        | 0.0  | 17.5 | 0.5  | 73.2  | 0.5  | 0.0  | 10.5 |      |      | 0.0     | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  |      |      | 0.0     | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 0.0  | 20.1 | 3.0  | 9.4   | 5.0  | 0.0  | 7.3  |      |      | 0.0     | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |       |      |      |      |      |      |         |      |      |
| LnGrp Delay(d), s/veh         | 0.0  | 38.7 | 13.4 | 111.3 | 7.3  | 0.0  | 44.5 |      |      | 0.0     | 0.0  | 0.0  |
| LnGrp LOS                     |      | D    | B    | F     | A    |      | D    |      |      |         |      |      |
| Approach Vol, veh/h           | 2049 |      |      |       |      |      | 1605 |      | 0    |         |      |      |
| Approach Delay, s/veh         | 35.4 |      |      |       |      |      | 22.8 |      | 0.0  |         |      |      |
| Approach LOS                  | D    |      |      |       |      |      | C    |      |      |         |      |      |
|                               |      |      |      |       |      |      |      |      |      |         |      |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4     | 6    |      |      |      |      |         |      |      |
| Phs Duration (G+Y+Rc), s      | 6.0  | 49.0 | 22.1 | 0.0   | 65.0 |      |      |      |      |         |      |      |
| Change Period (Y+Rc), s       | 5.0  | 5.0  | 5.0  | 4.5   | 5.0  |      |      |      |      |         |      |      |
| Max Green Setting (Gmax), s   | 1.0  | 44.0 | 25.0 | 18.0  | 60.0 |      |      |      |      |         |      |      |
| Max Q Clear Time (g_c+1/3), s | 1.0  | 44.6 | 16.6 | 0.0   | 18.7 |      |      |      |      |         |      |      |
| Green Ext Time (p_c), s       | 0.0  | 0.0  | 0.5  | 0.0   | 25.3 |      |      |      |      |         |      |      |
| Intersection Summary          |      |      |      |       |      |      |      |      |      |         |      |      |
| HCM 6th Ctrl Delay, s/veh     |      |      | 31.0 |       |      |      |      |      |      |         |      |      |
| HCM 6th LOS                   |      |      | C    |       |      |      |      |      |      |         |      |      |

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 334                                                                               |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT  | NBR                                                                               | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |      |  |  |      |      |      |  |      |  |      |
| Traffic Vol, veh/h       | 70                                                                                | 1680                                                                              | 80   | 105                                                                               | 1345                                                                              | 95   | 0    | 0    | 145                                                                               | 25   | 5                                                                                   | 125  |
| Future Vol, veh/h        | 70                                                                                | 1680                                                                              | 80   | 105                                                                               | 1345                                                                              | 95   | 0    | 0    | 145                                                                               | 25   | 5                                                                                   | 125  |
| Conflicting Peds, #/hr   | 4                                                                                 | 0                                                                                 | 4    | 4                                                                                 | 0                                                                                 | 4    | 1    | 0    | 2                                                                                 | 2    | 0                                                                                   | 1    |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop | Stop                                                                              | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -    | None                                                                              | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | -    | 100                                                                               | -                                                                                 | -    | -    | -    | 0                                                                                 | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92   | 92   | 92   | 92                                                                                | 92   | 92                                                                                  | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 1                                                                                 | 0    | 0                                                                                 | 1                                                                                 | 0    | 0    | 0    | 0                                                                                 | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 76                                                                                | 1826                                                                              | 87   | 114                                                                               | 1462                                                                              | 103  | 0    | 0    | 158                                                                               | 27   | 5                                                                                   | 136  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|---|-----|--------|------|-----|
| Conflicting Flow All | 1569   | 0 | 0 | 1917   | 0 | 0 | -      | - | 963 | 2813   | 3815 | 788 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -   | 1746   | 1746 | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -   | 1067   | 2069 | -   |
| Critical Hdwy        | 4.14   | - | - | 4.1    | - | - | -      | - | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.22   | - | - | 2.2    | - | - | -      | - | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 417    | - | - | 313    | - | - | 0      | 0 | 259 | ~ 9    | ~ 4  | 338 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -   | 91     | 142  | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -   | 241    | 97   | -   |
| Platoon blocked, %   |        | - | - |        | - | - |        |   |     |        |      |     |
| Mov Cap-1 Maneuver   | 415    | - | - | 312    | - | - | -      | - | 258 | ~ 2    | ~ 2  | 336 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -   | ~ 2    | ~ 2  | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -   | 74     | 90   | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -   | 76     | 79   | -   |

| Approach               | EB  | WB  | NB   | SB        |
|------------------------|-----|-----|------|-----------|
| HCM Control Delay, s/v | 0.6 | 1.6 | 38.6 | \$ 7860.6 |
| HCM LOS                |     |     | E    | F         |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1     |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-----------|
| Capacity (veh/h)          | 258   | 415   | -   | -   | 312   | -   | -   | 10        |
| HCM Lane V/C Ratio        | 0.611 | 0.183 | -   | -   | 0.366 | -   | -   | 16.848    |
| HCM Control Delay (s/veh) | 38.6  | 15.6  | -   | -   | 23    | -   | -   | \$ 7860.6 |
| HCM Lane LOS              | E     | C     | -   | -   | C     | -   | -   | F         |
| HCM 95th %tile Q (veh)    | 3.6   | 0.7   | -   | -   | 1.6   | -   | -   | 22.6      |

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

# HCM 6th Signalized Intersection Summary

## 7: Purcell Blvd & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 290                                                                               | 1420                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 145                                                                                 | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 250                                                                                 |
| Future Volume (veh/h)        | 290                                                                               | 1420                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 145                                                                                 | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 250                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                                |                                                                                     | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 309                                                                               | 1511                                                                              | 143                                                                               | 239                                                                               | 1223                                                                              | 108                                                                               | 154                                                                                 | 266                                                                                 | 140                                                                                 | 144                                                                                 | 266                                                                                 | 66                                                                                  |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 313                                                                               | 1410                                                                              | 132                                                                               | 180                                                                               | 1176                                                                              | 104                                                                               | 132                                                                                 | 243                                                                                 | 128                                                                                 | 148                                                                                 | 415                                                                                 | 627                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.43                                                                              | 0.43                                                                              | 0.10                                                                              | 0.35                                                                              | 0.35                                                                              | 0.07                                                                                | 0.21                                                                                | 0.21                                                                                | 0.08                                                                                | 0.22                                                                                | 0.22                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3299                                                                              | 309                                                                               | 1795                                                                              | 3318                                                                              | 292                                                                               | 1810                                                                                | 1161                                                                                | 611                                                                                 | 1810                                                                                | 1900                                                                                | 1599                                                                                |
| Grp Volume(v), veh/h         | 309                                                                               | 814                                                                               | 840                                                                               | 239                                                                               | 659                                                                               | 672                                                                               | 154                                                                                 | 0                                                                                   | 406                                                                                 | 144                                                                                 | 266                                                                                 | 66                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1817                                                                              | 1795                                                                              | 1791                                                                              | 1819                                                                              | 1810                                                                                | 0                                                                                   | 1772                                                                                | 1810                                                                                | 1900                                                                                | 1599                                                                                |
| Q Serve(g_s), s              | 18.7                                                                              | 47.0                                                                              | 47.0                                                                              | 11.0                                                                              | 39.0                                                                              | 39.0                                                                              | 8.0                                                                                 | 0.0                                                                                 | 23.0                                                                                | 8.7                                                                                 | 14.0                                                                                | 2.9                                                                                 |
| Cycle Q Clear(g_c), s        | 18.7                                                                              | 47.0                                                                              | 47.0                                                                              | 11.0                                                                              | 39.0                                                                              | 39.0                                                                              | 8.0                                                                                 | 0.0                                                                                 | 23.0                                                                                | 8.7                                                                                 | 14.0                                                                                | 2.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                                |                                                                                     | 0.34                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 313                                                                               | 765                                                                               | 777                                                                               | 180                                                                               | 635                                                                               | 645                                                                               | 132                                                                                 | 0                                                                                   | 371                                                                                 | 148                                                                                 | 415                                                                                 | 627                                                                                 |
| V/C Ratio(X)                 | 0.99                                                                              | 1.06                                                                              | 1.08                                                                              | 1.33                                                                              | 1.04                                                                              | 1.04                                                                              | 1.17                                                                                | 0.00                                                                                | 1.10                                                                                | 0.97                                                                                | 0.64                                                                                | 0.11                                                                                |
| Avail Cap(c_a), veh/h        | 313                                                                               | 765                                                                               | 777                                                                               | 180                                                                               | 635                                                                               | 645                                                                               | 132                                                                                 | 0                                                                                   | 371                                                                                 | 148                                                                                 | 415                                                                                 | 627                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 45.4                                                                              | 31.5                                                                              | 31.5                                                                              | 49.5                                                                              | 35.5                                                                              | 35.5                                                                              | 51.0                                                                                | 0.0                                                                                 | 43.5                                                                                | 50.4                                                                                | 39.1                                                                                | 21.3                                                                                |
| Incr Delay (d2), s/veh       | 47.6                                                                              | 50.7                                                                              | 56.9                                                                              | 182.0                                                                             | 45.8                                                                              | 46.9                                                                              | 131.4                                                                               | 0.0                                                                                 | 75.0                                                                                | 65.4                                                                                | 3.0                                                                                 | 0.1                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 12.4                                                                              | 30.0                                                                              | 31.8                                                                              | 13.9                                                                              | 24.4                                                                              | 25.0                                                                              | 8.4                                                                                 | 0.0                                                                                 | 17.7                                                                                | 6.6                                                                                 | 6.8                                                                                 | 1.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 93.0                                                                              | 82.2                                                                              | 88.4                                                                              | 231.5                                                                             | 81.3                                                                              | 82.4                                                                              | 182.4                                                                               | 0.0                                                                                 | 118.5                                                                               | 115.7                                                                               | 42.1                                                                                | 21.3                                                                                |
| LnGrp LOS                    | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                   |                                                                                     | F                                                                                   | F                                                                                   | D                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 1963                                                                              |                                                                                   |                                                                                   | 1570                                                                              |                                                                                   |                                                                                     | 560                                                                                 |                                                                                     |                                                                                     | 476                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 86.5                                                                              |                                                                                   |                                                                                   | 104.6                                                                             |                                                                                   |                                                                                     | 136.1                                                                               |                                                                                     |                                                                                     | 61.5                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 16.0                                                                              | 52.0                                                                              | 14.0                                                                              | 28.0                                                                              | 24.0                                                                              | 44.0                                                                              | 13.0                                                                                | 29.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 11.0                                                                              | 47.0                                                                              | 9.0                                                                               | 23.0                                                                              | 19.0                                                                              | 39.0                                                                              | 8.0                                                                                 | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.0                                                                              | 49.0                                                                              | 10.7                                                                              | 25.0                                                                              | 20.7                                                                              | 41.0                                                                              | 10.0                                                                                | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 96.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.3  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   | ↑    | ↑    | ↑↑   | ↑    | ↑    |
| Traffic Vol, veh/h       | 1635 | 65   | 105  | 1440 | 40   | 95   |
| Future Vol, veh/h        | 1635 | 65   | 105  | 1440 | 40   | 95   |
| Conflicting Peds, #/hr   | 0    | 5    | 5    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 100  | 100  | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 1    | 0    | 0    | 1    | 0    | 1    |
| Mvmt Flow                | 1721 | 68   | 111  | 1516 | 42   | 100  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1794   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.1    |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.2    |
| Pot Cap-1 Maneuver   | -      | -      | 349    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 347    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB | WB  | NB   |
|------------------------|----|-----|------|
| HCM Control Delay, s/v | 0  | 1.4 | 91.3 |
| HCM LOS                |    |     | F    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBL   | WBT |
|---------------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)          | 166   | -   | -   | 347   | -   |
| HCM Lane V/C Ratio        | 0.856 | -   | -   | 0.319 | -   |
| HCM Control Delay (s/veh) | 91.3  | -   | -   | 20.1  | -   |
| HCM Lane LOS              | F     | -   | -   | C     | -   |
| HCM 95th %tile Q (veh)    | 6     | -   | -   | 1.3   | -   |

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

HCM 6th Signalized Intersection Summary  
9: SE 27th St/NE 27th St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 455                                                                               | 685                                                                               | 365                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                 | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Future Volume (veh/h)        | 455                                                                               | 685                                                                               | 365                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                 | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.98                                                                                | 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1870                                                                              | 1900                                                                                | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 469                                                                               | 706                                                                               | 349                                                                               | 247                                                                               | 536                                                                               | 64                                                                                | 464                                                                                 | 727                                                                                 | 210                                                                                 | 201                                                                                 | 1345                                                                                | 0                                                                                   |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 295                                                                               | 607                                                                               | 300                                                                               | 196                                                                               | 669                                                                               | 80                                                                                | 263                                                                                 | 892                                                                                 | 258                                                                                 | 211                                                                                 | 1083                                                                                |                                                                                     |
| Arrive On Green              | 0.16                                                                              | 0.26                                                                              | 0.26                                                                              | 0.11                                                                              | 0.21                                                                              | 0.21                                                                              | 0.15                                                                                | 0.33                                                                                | 0.33                                                                                | 0.12                                                                                | 0.30                                                                                | 0.00                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 2301                                                                              | 1137                                                                              | 1795                                                                              | 3188                                                                              | 379                                                                               | 1810                                                                                | 2725                                                                                | 787                                                                                 | 1781                                                                                | 3610                                                                                | 1610                                                                                |
| Grp Volume(v), veh/h         | 469                                                                               | 549                                                                               | 506                                                                               | 247                                                                               | 298                                                                               | 302                                                                               | 464                                                                                 | 478                                                                                 | 459                                                                                 | 201                                                                                 | 1345                                                                                | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1647                                                                              | 1795                                                                              | 1777                                                                              | 1790                                                                              | 1810                                                                                | 1791                                                                                | 1722                                                                                | 1781                                                                                | 1805                                                                                | 1610                                                                                |
| Q Serve(g_s), s              | 17.9                                                                              | 29.0                                                                              | 29.0                                                                              | 12.0                                                                              | 17.5                                                                              | 17.6                                                                              | 16.0                                                                                | 26.9                                                                                | 26.9                                                                                | 12.3                                                                                | 33.0                                                                                | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 17.9                                                                              | 29.0                                                                              | 29.0                                                                              | 12.0                                                                              | 17.5                                                                              | 17.6                                                                              | 16.0                                                                                | 26.9                                                                                | 26.9                                                                                | 12.3                                                                                | 33.0                                                                                | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.21                                                                              | 1.00                                                                                |                                                                                     | 0.46                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 295                                                                               | 472                                                                               | 434                                                                               | 196                                                                               | 373                                                                               | 376                                                                               | 263                                                                                 | 586                                                                                 | 563                                                                                 | 211                                                                                 | 1083                                                                                |                                                                                     |
| V/C Ratio(X)                 | 1.59                                                                              | 1.16                                                                              | 1.16                                                                              | 1.26                                                                              | 0.80                                                                              | 0.80                                                                              | 1.76                                                                                | 0.82                                                                                | 0.82                                                                                | 0.95                                                                                | 1.24                                                                                |                                                                                     |
| Avail Cap(c_a), veh/h        | 295                                                                               | 472                                                                               | 434                                                                               | 196                                                                               | 404                                                                               | 407                                                                               | 263                                                                                 | 586                                                                                 | 563                                                                                 | 211                                                                                 | 1083                                                                                |                                                                                     |
| 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                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 46.0                                                                              | 40.5                                                                              | 40.5                                                                              | 49.0                                                                              | 41.2                                                                              | 41.3                                                                              | 47.0                                                                                | 33.9                                                                                | 33.9                                                                                | 48.2                                                                                | 38.5                                                                                | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 282.1                                                                             | 94.6                                                                              | 96.5                                                                              | 151.8                                                                             | 9.7                                                                               | 10.0                                                                              | 358.4                                                                               | 11.8                                                                                | 12.3                                                                                | 49.0                                                                                | 116.8                                                                               | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 31.0                                                                              | 24.8                                                                              | 23.1                                                                              | 13.6                                                                              | 8.5                                                                               | 8.7                                                                               | 33.3                                                                                | 13.3                                                                                | 12.8                                                                                | 8.3                                                                                 | 31.7                                                                                | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 328.1                                                                             | 135.1                                                                             | 137.0                                                                             | 200.8                                                                             | 50.9                                                                              | 51.3                                                                              | 405.4                                                                               | 45.8                                                                                | 46.2                                                                                | 97.2                                                                                | 155.3                                                                               | 0.0                                                                                 |
| LnGrp LOS                    | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                   | D                                                                                   | D                                                                                   | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Vol, veh/h          | 1524                                                                              |                                                                                   |                                                                                   | 847                                                                               |                                                                                   |                                                                                   | 1401                                                                                |                                                                                     |                                                                                     | 1546                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 195.1                                                                             |                                                                                   |                                                                                   | 94.8                                                                              |                                                                                   |                                                                                   | 165.0                                                                               |                                                                                     |                                                                                     | 147.8                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.0                                                                              | 34.0                                                                              | 21.0                                                                              | 38.0                                                                              | 22.9                                                                              | 28.1                                                                              | 18.0                                                                                | 41.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 12.0                                                                              | 29.0                                                                              | 16.0                                                                              | 33.0                                                                              | 16.0                                                                              | 25.0                                                                              | 13.0                                                                                | 36.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 14.0                                                                              | 31.0                                                                              | 18.0                                                                              | 35.0                                                                              | 19.9                                                                              | 19.6                                                                              | 14.3                                                                                | 28.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 3.2                                                                               | 0.0                                                                                 | 2.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Intersection Summary

|                           |       |
|---------------------------|-------|
| HCM 6th Ctrl Delay, s/veh | 157.5 |
| HCM 6th LOS               | F     |

Notes

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

HCM 6th TWSC  
10: NE Bellevue Dr/NE Benson Way & US 20

Future PM Peak 30HV  
12/23/2024

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 23.2                                                                              |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |      |  |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Future Vol, veh/h        | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 12   | 12                                                                                | 0                                                                                 | 1    | 1    | 0                                                                                 | 1    | 1    | 0                                                                                   | 1    |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 75                                                                                | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 94                                                                                | 94                                                                                | 94   | 94                                                                                | 94                                                                                | 94   | 94   | 94                                                                                | 94   | 94   | 94                                                                                  | 94   |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 0    | 0                                                                                 | 2                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 96                                                                                | 973                                                                               | 122  | 37                                                                                | 729                                                                               | 32   | 37   | 5                                                                                 | 106  | 32   | 5                                                                                   | 112  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 762    | 0 | 0 | 1107   | 0 | 0 | 1680   | 2074 | 561 | 1502   | 2119 | 383 |
| Stage 1              | -      | - | - | -      | - | - | 1238   | 1238 | -   | 820    | 820  | -   |
| Stage 2              | -      | - | - | -      | - | - | 442    | 836  | -   | 682    | 1299 | -   |
| Critical Hdwy        | 4.1    | - | - | 4.1    | - | - | 7.5    | 6.5  | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.2    | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 859    | - | - | 638    | - | - | 63     | 54   | 476 | 86     | 51   | 621 |
| Stage 1              | -      | - | - | -      | - | - | 189    | 250  | -   | 340    | 392  | -   |
| Stage 2              | -      | - | - | -      | - | - | 570    | 385  | -   | 411    | 234  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 858    | - | - | 631    | - | - | 40     | 45   | 470 | 53     | 42   | 620 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 40     | 45   | -   | 53     | 42   | -   |
| Stage 1              | -      | - | - | -      | - | - | 166    | 220  | -   | 302    | 368  | -   |
| Stage 2              | -      | - | - | -      | - | - | 433    | 362  | -   | 275    | 205  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB    |  |  | SB    |  |  |
|------------------------|-----|--|--|-----|--|--|-------|--|--|-------|--|--|
| HCM Control Delay, s/v | 0.8 |  |  | 0.5 |  |  | 243.5 |  |  | 103.2 |  |  |
| HCM LOS                |     |  |  |     |  |  | F     |  |  | F     |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 117   | 858   | -   | -   | 631   | -   | -   | 164   |
| HCM Lane V/C Ratio        | 1.273 | 0.112 | -   | -   | 0.059 | -   | -   | 0.908 |
| HCM Control Delay (s/veh) | 243.5 | 9.7   | -   | -   | 11.1  | -   | -   | 103.2 |
| HCM Lane LOS              | F     | A     | -   | -   | B     | -   | -   | F     |
| HCM 95th %tile Q (veh)    | 9.7   | 0.4   | -   | -   | 0.2   | -   | -   | 6.6   |

## LANE SUMMARY

 Site: 101 [US 20 & Hamby - Future NB (Site Folder: US20 No Build)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site

Site Category: (None)

Roundabout

| Lane Use and Performance |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
|--------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-------------------|----------|-------------|-------------|-----------|--------------|
|                          | Demand Flows  |      | Arrival Flows |      | Cap.  | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 95% Back Of Queue |          | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
|                          | [ Total veh/h | HV % | [ Total veh/h | HV % | veh/h | v/c       | %          | sec         |                  | [ Veh             | Dist ] m |             | m           | %         | %            |
| South: Ward Road         |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 576           | 1.0  | 576           | 1.0  | 677   | 0.851     | 100        | 34.5        | LOS D            | 12.0              | 84.6     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 576           | 1.0  | 576           | 1.0  |       | 0.851     |            | 34.5        | LOS D            | 12.0              | 84.6     |             |             |           |              |
| East: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 755           | 3.5  | 755           | 3.5  | 786   | 0.962     | 100        | 55.9        | LOS F            | 30.8              | 222.1    | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 755           | 3.5  | 755           | 3.5  |       | 0.962     |            | 55.9        | LOS F            | 30.8              | 222.1    |             |             |           |              |
| North: Hamby Road        |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 511           | 1.6  | 511           | 1.6  | 597   | 0.856     | 100        | 39.0        | LOS E            | 10.3              | 73.1     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 511           | 1.6  | 511           | 1.6  |       | 0.856     |            | 39.0        | LOS E            | 10.3              | 73.1     |             |             |           |              |
| West: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 870           | 2.0  | 870           | 2.0  | 708   | 1.229     | 100        | 237.2       | LOS F            | 116.1             | 826.5    | Full        | 500         | 0.0       | 22.7         |
| Approach                 | 870           | 2.0  | 870           | 2.0  |       | 1.229     |            | 237.2       | LOS F            | 116.1             | 826.5    |             |             |           |              |
| All Vehicles             | 2712          | 2.2  | 2712          | 2.2  |       | 1.229     |            | 106.3       | LOS F            | 116.1             | 826.5    |             |             |           |              |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>d</sup> Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) |     |     |     |       |     |            |           |            |          |     |              |
|-----------------------------|-----|-----|-----|-------|-----|------------|-----------|------------|----------|-----|--------------|
| South: Ward Road            |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From S To Exit:             | W   | N   | E   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 103 | 293 | 179 | 576   | 1.0 | 677        | 0.851     | 100        | NA       | NA  |              |
| Approach                    | 103 | 293 | 179 | 576   | 1.0 |            | 0.851     |            |          |     |              |
| East: US 20                 |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From E To Exit:             | S   | W   | N   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 217 | 473 | 65  | 755   | 3.5 | 786        | 0.962     | 100        | NA       | NA  |              |

|                          |       |     |     |       |     |      |       |       |       |     |      |
|--------------------------|-------|-----|-----|-------|-----|------|-------|-------|-------|-----|------|
| Approach                 | 217   | 473 | 65  | 755   | 3.5 |      | 0.962 |       |       |     |      |
| North: Hamby Road        |       |     |     |       |     |      |       |       |       |     |      |
| Mov.                     | L2    | T1  | R2  | Total | %HV |      | Deg.  | Lane  | Prob. | Ov. |      |
| From N                   |       |     |     |       |     |      | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | E     | S   | W   |       |     | Cap. | v/c   | %     | %     | No. |      |
|                          | veh/h |     |     |       |     |      |       |       |       |     |      |
| Lane 1                   | 76    | 337 | 98  | 511   | 1.6 | 597  | 0.856 | 100   | NA    | NA  |      |
| Approach                 | 76    | 337 | 98  | 511   | 1.6 |      | 0.856 |       |       |     |      |
| West: US 20              |       |     |     |       |     |      |       |       |       |     |      |
| Mov.                     | L2    | T1  | R2  | Total | %HV |      | Deg.  | Lane  | Prob. | Ov. |      |
| From W                   |       |     |     |       |     |      | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | N     | E   | S   |       |     | Cap. | v/c   | %     | %     | No. |      |
|                          | veh/h |     |     |       |     |      |       |       |       |     |      |
| Lane 1                   | 147   | 587 | 136 | 870   | 2.0 | 708  | 1.229 | 100   | NA    | NA  |      |
| Approach                 | 147   | 587 | 136 | 870   | 2.0 |      | 1.229 |       |       |     |      |
| Total %HV Deg.Satn (v/c) |       |     |     |       |     |      |       |       |       |     |      |
| All Vehicles             | 2712  | 2.2 |     | 1.229 |     |      |       |       |       |     |      |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

| Merge Analysis                                                 |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |
|----------------------------------------------------------------|------------------|---------------------|------------------------|-----------------|--------------------------|------------------|-----------------------|---------------------|---------------|----------------|-----------------|--|
|                                                                | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |  |
| There are no Exit Short Lanes for Merge Analysis at this Site. |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |

| Variable Demand Analysis |                           |                            |                                       |                          |
|--------------------------|---------------------------|----------------------------|---------------------------------------|--------------------------|
|                          | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
| South: Ward Road         |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| East: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| North: Hamby Road        |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| West: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 81.0                       | 412.2                                 | NA                       |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 5.9  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↰    | ↱    |      | ↰    | ↱    |      | ↰    | ↱    |      | ↰    | ↱    |
| Traffic Vol, veh/h       | 40   | 730  | 5    | 15   | 630  | 35   | 25   | 5    | 15   | 20   | 15   | 40   |
| Future Vol, veh/h        | 40   | 730  | 5    | 15   | 630  | 35   | 25   | 5    | 15   | 20   | 15   | 40   |
| 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           | -    | -    | 68   | -    | -    | 93   | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 0    | 2    | 0    | 12   | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 43   | 793  | 5    | 16   | 685  | 38   | 27   | 5    | 16   | 22   | 16   | 43   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 723    | 0 | 0 | 798    | 0 | 0 | 1645   | 1634 | 793 | 1609   | 1601 | 685 |
| Stage 1              | -      | - | - | -      | - | - | 879    | 879  | -   | 717    | 717  | -   |
| Stage 2              | -      | - | - | -      | - | - | 766    | 755  | -   | 892    | 884  | -   |
| Critical Hdwy        | 4.1    | - | - | 4.22   | - | - | 7.1    | 6.5  | 6.2 | 7.1    | 6.5  | 6.2 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.308  | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 889    | - | - | 782    | - | - | 80     | 102  | 392 | 85     | 107  | 452 |
| Stage 1              | -      | - | - | -      | - | - | 345    | 368  | -   | 424    | 437  | -   |
| Stage 2              | -      | - | - | -      | - | - | 398    | 420  | -   | 339    | 366  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 889    | - | - | 782    | - | - | 57     | 90   | 392 | 71     | 94   | 452 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 57     | 90   | -   | 71     | 94   | -   |
| Stage 1              | -      | - | - | -      | - | - | 315    | 336  | -   | 387    | 422  | -   |
| Stage 2              | -      | - | - | -      | - | - | 334    | 406  | -   | 292    | 334  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|----|--|--|
| HCM Control Delay, s/v | 0.5 |  |  | 0.2 |  |  | 93.6 |  |  | 60 |  |  |
| HCM LOS                |     |  |  |     |  |  | F    |  |  | F  |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 85    | 889   | -   | -   | 782   | -   | -   | 142   |
| HCM Lane V/C Ratio        | 0.575 | 0.049 | -   | -   | 0.021 | -   | -   | 0.574 |
| HCM Control Delay (s/veh) | 93.6  | 9.3   | 0   | -   | 9.7   | 0   | -   | 60    |
| HCM Lane LOS              | F     | A     | A   | -   | A     | A   | -   | F     |
| HCM 95th %tile Q (veh)    | 2.6   | 0.2   | -   | -   | 0.1   | -   | -   | 2.9   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Future Vol, veh/h        | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | Free                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 220                                                                               | -                                                                                 | -                                                                                 | 140                                                                               | 0                                                                                 | 80                                                                                |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                |
| Heavy Vehicles, %        | 0                                                                                 | 3                                                                                 | 9                                                                                 | 11                                                                                | 25                                                                                | 1                                                                                 |
| Mvmt Flow                | 478                                                                               | 363                                                                               | 269                                                                               | 16                                                                                | 5                                                                                 | 484                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2          |
|----------------------|--------|--------|-----------------|
| Conflicting Flow All | 269    | 0      | 0 1588 269      |
| Stage 1              | -      | -      | - - 269 -       |
| Stage 2              | -      | -      | - - 1319 -      |
| Critical Hdwy        | 4.1    | -      | - - 6.65 6.21   |
| Critical Hdwy Stg 1  | -      | -      | - - 5.65 -      |
| Critical Hdwy Stg 2  | -      | -      | - - 5.65 -      |
| Follow-up Hdwy       | 2.2    | -      | - - 3.725 3.309 |
| Pot Cap-1 Maneuver   | 1306   | -      | - 0 105 772     |
| Stage 1              | -      | -      | - 0 726 -       |
| Stage 2              | -      | -      | - 0 224 -       |
| Platoon blocked, %   | -      | -      |                 |
| Mov Cap-1 Maneuver   | 1306   | -      | - - 67 772      |
| Mov Cap-2 Maneuver   | -      | -      | - - 67 -        |
| Stage 1              | -      | -      | - - 460 -       |
| Stage 2              | -      | -      | - - 224 -       |

| Approach               | EB  | WB | SB   |
|------------------------|-----|----|------|
| HCM Control Delay, s/v | 5.3 | 0  | 17.6 |
| HCM LOS                |     |    | C    |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | SBLn1 | SBLn2 |
|---------------------------|-------|-----|-----|-------|-------|
| Capacity (veh/h)          | 1306  | -   | -   | 67    | 772   |
| HCM Lane V/C Ratio        | 0.366 | -   | -   | 0.082 | 0.626 |
| HCM Control Delay (s/veh) | 9.3   | -   | -   | 63.5  | 17.1  |
| HCM Lane LOS              | A     | -   | -   | F     | C     |
| HCM 95th %tile Q (veh)    | 1.7   | -   | -   | 0.3   | 4.5   |

## **APPENDIX B: FUTURE (2042) PREFERRED ALTERNATIVES - STEPS 1& 2**

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# HCM 6th Signalized Intersection Summary

## 1: NE 3rd St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Future Volume (veh/h)        | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.96                                                                                | 1.00                                                                                |                                                                                     | 0.94                                                                                |
| 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       | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                              | 1870                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 376                                                                               | 882                                                                               | 244                                                                               | 263                                                                               | 753                                                                               | 274                                                                               | 215                                                                                 | 726                                                                                 | 238                                                                                 | 323                                                                                 | 849                                                                                 | 146                                                                                 |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 2                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 305                                                                               | 970                                                                               | 268                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 655                                                                                 | 215                                                                                 | 267                                                                                 | 876                                                                                 | 151                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.35                                                                              | 0.34                                                                              | 0.15                                                                              | 0.33                                                                              | 0.33                                                                              | 0.11                                                                                | 0.25                                                                                | 0.24                                                                                | 0.15                                                                                | 0.29                                                                                | 0.28                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 2772                                                                              | 766                                                                               | 1781                                                                              | 1900                                                                              | 1533                                                                              | 1795                                                                                | 2619                                                                                | 858                                                                                 | 1781                                                                                | 3047                                                                                | 524                                                                                 |
| Grp Volume(v), veh/h         | 376                                                                               | 574                                                                               | 552                                                                               | 263                                                                               | 753                                                                               | 274                                                                               | 215                                                                                 | 497                                                                                 | 467                                                                                 | 323                                                                                 | 503                                                                                 | 492                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1805                                                                              | 1733                                                                              | 1781                                                                              | 1900                                                                              | 1533                                                                              | 1795                                                                                | 1791                                                                                | 1686                                                                                | 1781                                                                                | 1805                                                                                | 1766                                                                                |
| Q Serve(g_s), s              | 27.0                                                                              | 48.5                                                                              | 48.7                                                                              | 23.6                                                                              | 53.0                                                                              | 18.1                                                                              | 18.0                                                                                | 40.0                                                                                | 40.0                                                                                | 24.0                                                                                | 44.0                                                                                | 44.0                                                                                |
| Cycle Q Clear(g_c), s        | 27.0                                                                              | 48.5                                                                              | 48.7                                                                              | 23.6                                                                              | 53.0                                                                              | 18.1                                                                              | 18.0                                                                                | 40.0                                                                                | 40.0                                                                                | 24.0                                                                                | 44.0                                                                                | 44.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.44                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.51                                                                                | 1.00                                                                                |                                                                                     | 0.30                                                                                |
| Lane Grp Cap(c), veh/h       | 305                                                                               | 632                                                                               | 607                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 448                                                                                 | 421                                                                                 | 267                                                                                 | 519                                                                                 | 508                                                                                 |
| V/C Ratio(X)                 | 1.23                                                                              | 0.91                                                                              | 0.91                                                                              | 0.98                                                                              | 1.20                                                                              | 0.37                                                                              | 1.06                                                                                | 1.11                                                                                | 1.11                                                                                | 1.21                                                                                | 0.97                                                                                | 0.97                                                                                |
| Avail Cap(c_a), veh/h        | 305                                                                               | 632                                                                               | 607                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 448                                                                                 | 421                                                                                 | 267                                                                                 | 519                                                                                 | 508                                                                                 |
| 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     | 66.5                                                                              | 49.6                                                                              | 49.8                                                                              | 67.8                                                                              | 53.5                                                                              | 26.2                                                                              | 71.0                                                                                | 60.0                                                                                | 60.3                                                                                | 68.0                                                                                | 56.3                                                                                | 56.4                                                                                |
| Incr Delay (d2), s/veh       | 129.4                                                                             | 16.7                                                                              | 17.5                                                                              | 50.4                                                                              | 103.3                                                                             | 0.1                                                                               | 81.4                                                                                | 75.6                                                                                | 76.8                                                                                | 123.6                                                                               | 31.6                                                                                | 32.0                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 23.6                                                                              | 25.0                                                                              | 24.2                                                                              | 14.6                                                                              | 43.5                                                                              | 6.8                                                                               | 12.8                                                                                | 27.4                                                                                | 26.0                                                                                | 20.1                                                                                | 24.5                                                                                | 24.0                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 195.9                                                                             | 66.3                                                                              | 67.3                                                                              | 118.2                                                                             | 156.8                                                                             | 26.3                                                                              | 152.4                                                                               | 135.6                                                                               | 137.1                                                                               | 191.6                                                                               | 87.9                                                                                | 88.5                                                                                |
| LnGrp LOS                    | F                                                                                 | E                                                                                 | E                                                                                 | F                                                                                 | F                                                                                 | C                                                                                 | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   |
| Approach Vol, veh/h          | 1502                                                                              |                                                                                   | 1290                                                                              |                                                                                   |                                                                                   |                                                                                   | 1179                                                                                |                                                                                     | 1318                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 99.1                                                                              |                                                                                   | 121.2                                                                             |                                                                                   |                                                                                   |                                                                                   | 139.2                                                                               |                                                                                     | 113.5                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   | F                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 22.0                                                                              | 50.0                                                                              | 31.0                                                                              | 57.0                                                                              | 28.0                                                                              | 44.0                                                                              | 28.0                                                                                | 60.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 17.0                                                                              | 45.0                                                                              | 26.0                                                                              | 52.0                                                                              | 23.0                                                                              | 39.0                                                                              | 23.0                                                                                | 55.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 20.0                                                                              | 46.0                                                                              | 29.0                                                                              | 55.0                                                                              | 26.0                                                                              | 42.0                                                                              | 25.6                                                                                | 50.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 3.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    | 117.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 4.1                                                                               |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT  | NBR                                                                               | SBL  | SBT  | SBR                                                                                 |
| Lane Configurations      |  |  |      |  |  |      |      |      |  |      |      |  |
| Traffic Vol, veh/h       | 50                                                                                | 1295                                                                              | 20   | 65                                                                                | 980                                                                               | 130  | 0    | 0    | 210                                                                               | 0    | 0    | 220                                                                                 |
| Future Vol, veh/h        | 50                                                                                | 1295                                                                              | 20   | 65                                                                                | 980                                                                               | 130  | 0    | 0    | 210                                                                               | 0    | 0    | 220                                                                                 |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 1    | 1                                                                                 | 0                                                                                 | 1    | 2    | 0    | 0                                                                                 | 0    | 0    | 2                                                                                   |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -    | None                                                                              | -    | -    | None                                                                                |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 100                                                                               | -                                                                                 | -    | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Peak Hour Factor         | 93                                                                                | 93                                                                                | 93   | 93                                                                                | 93                                                                                | 93   | 93   | 93   | 93                                                                                | 93   | 93   | 93                                                                                  |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 5    | 2                                                                                 | 1                                                                                 | 0    | 0    | 0    | 1                                                                                 | 0    | 0    | 0                                                                                   |
| Mvmt Flow                | 54                                                                                | 1392                                                                              | 22   | 70                                                                                | 1054                                                                              | 140  | 0    | 0    | 226                                                                               | 0    | 0    | 237                                                                                 |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      | Minor2 |   |     |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|-----|
| Conflicting Flow All | 1195   | 0 | 0 | 1415   | 0 | 0 | -      | - | 708  | -      | - | 600 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy        | 4.1    | - | - | 4.14   | - | - | -      | - | 6.92 | -      | - | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.22   | - | - | -      | - | 3.31 | -      | - | 3.3 |
| Pot Cap-1 Maneuver   | 591    | - | - | 478    | - | - | 0      | 0 | 379  | 0      | 0 | 449 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Mov Cap-1 Maneuver   | 590    | - | - | 478    | - | - | -      | - | 379  | -      | - | 448 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s/v | 0.4 |  |  | 0.8 |  |  | 27.6 |  |  | 21.7 |  |  |
| HCM LOS                |     |  |  |     |  |  | D    |  |  | C    |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 379   | 590   | -   | -   | 478   | -   | -   | 448   |
| HCM Lane V/C Ratio        | 0.596 | 0.091 | -   | -   | 0.146 | -   | -   | 0.528 |
| HCM Control Delay (s/veh) | 27.6  | 11.7  | -   | -   | 13.8  | -   | -   | 21.7  |
| HCM Lane LOS              | D     | B     | -   | -   | B     | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 3.7   | 0.3   | -   | -   | 0.5   | -   | -   | 3     |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Future Vol, veh/h        | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Conflicting Peds, #/hr   | 1    | 0    | 5    | 5    | 0    | 1    | 4    | 0    | 0    | 0    | 0    | 4    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1602 | 16   | 0    | 1204 | 27   | 0    | 0    | 32   | 0    | 0    | 59   |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |     |
|----------------------|--------|---|--------|---|--------|---|--------|-----|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | 814 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9 |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -   |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3 |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 325 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -   |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 323 |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -   |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |

| Approach               | EB | WB | NB   | SB   |
|------------------------|----|----|------|------|
| HCM Control Delay, s/v | 0  | 0  | 17.4 | 14.6 |
| HCM LOS                |    |    | C    | B    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 323   | -   | -   | -   | -   | 433   |
| HCM Lane V/C Ratio        | 0.1   | -   | -   | -   | -   | 0.137 |
| HCM Control Delay (s/veh) | 17.4  | -   | -   | -   | -   | 14.6  |
| HCM Lane LOS              | C     | -   | -   | -   | -   | B     |
| HCM 95th %tile Q (veh)    | 0.3   | -   | -   | -   | -   | 0.5   |

# HCM 6th Signalized Intersection Summary 4: NE 8th St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 145                                                                               | 1305                                                                              | 55                                                                                | 250                                                                               | 1015                                                                              | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Future Volume (veh/h)        | 145                                                                               | 1305                                                                              | 55                                                                                | 250                                                                               | 1015                                                                              | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                                | 1885                                                                                | 1900                                                                                | 1900                                                                                | 1885                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 156                                                                               | 1403                                                                              | 57                                                                                | 269                                                                               | 1091                                                                              | 205                                                                               | 65                                                                                  | 306                                                                                 | 135                                                                                 | 382                                                                                 | 457                                                                                 | 70                                                                                  |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 229                                                                               | 1429                                                                              | 58                                                                                | 230                                                                               | 1293                                                                              | 242                                                                               | 191                                                                                 | 264                                                                                 | 116                                                                                 | 331                                                                                 | 499                                                                                 | 76                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.41                                                                              | 0.40                                                                              | 0.09                                                                              | 0.43                                                                              | 0.43                                                                              | 0.05                                                                                | 0.22                                                                                | 0.21                                                                                | 0.15                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3500                                                                              | 142                                                                               | 1810                                                                              | 2985                                                                              | 558                                                                               | 1810                                                                                | 1219                                                                                | 538                                                                                 | 1810                                                                                | 1588                                                                                | 243                                                                                 |
| Grp Volume(v), veh/h         | 156                                                                               | 716                                                                               | 744                                                                               | 269                                                                               | 653                                                                               | 643                                                                               | 65                                                                                  | 0                                                                                   | 441                                                                                 | 382                                                                                 | 0                                                                                   | 527                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1851                                                                              | 1810                                                                              | 1791                                                                              | 1752                                                                              | 1810                                                                                | 0                                                                                   | 1756                                                                                | 1810                                                                                | 0                                                                                   | 1831                                                                                |
| Q Serve(g_s), s              | 5.9                                                                               | 47.3                                                                              | 47.7                                                                              | 11.0                                                                              | 39.0                                                                              | 39.5                                                                              | 3.3                                                                                 | 0.0                                                                                 | 26.0                                                                                | 18.0                                                                                | 0.0                                                                                 | 33.3                                                                                |
| Cycle Q Clear(g_c), s        | 5.9                                                                               | 47.3                                                                              | 47.7                                                                              | 11.0                                                                              | 39.0                                                                              | 39.5                                                                              | 3.3                                                                                 | 0.0                                                                                 | 26.0                                                                                | 18.0                                                                                | 0.0                                                                                 | 33.3                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.08                                                                              | 1.00                                                                              |                                                                                   | 0.32                                                                              | 1.00                                                                                |                                                                                     | 0.31                                                                                | 1.00                                                                                |                                                                                     | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 229                                                                               | 731                                                                               | 756                                                                               | 230                                                                               | 776                                                                               | 759                                                                               | 191                                                                                 | 0                                                                                   | 381                                                                                 | 331                                                                                 | 0                                                                                   | 575                                                                                 |
| V/C Ratio(X)                 | 0.68                                                                              | 0.98                                                                              | 0.98                                                                              | 1.17                                                                              | 0.84                                                                              | 0.85                                                                              | 0.34                                                                                | 0.00                                                                                | 1.16                                                                                | 1.15                                                                                | 0.00                                                                                | 0.92                                                                                |
| Avail Cap(c_a), veh/h        | 229                                                                               | 731                                                                               | 756                                                                               | 230                                                                               | 776                                                                               | 759                                                                               | 201                                                                                 | 0                                                                                   | 381                                                                                 | 331                                                                                 | 0                                                                                   | 575                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.1                                                                              | 35.0                                                                              | 35.1                                                                              | 36.5                                                                              | 30.3                                                                              | 30.6                                                                              | 35.3                                                                                | 0.0                                                                                 | 47.2                                                                                | 36.0                                                                                | 0.0                                                                                 | 39.7                                                                                |
| Incr Delay (d2), s/veh       | 7.3                                                                               | 28.2                                                                              | 28.8                                                                              | 112.3                                                                             | 8.8                                                                               | 9.5                                                                               | 0.8                                                                                 | 0.0                                                                                 | 97.0                                                                                | 97.5                                                                                | 0.0                                                                                 | 19.4                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.9                                                                               | 25.6                                                                              | 26.7                                                                              | 10.7                                                                              | 18.1                                                                              | 18.1                                                                              | 1.5                                                                                 | 0.0                                                                                 | 21.6                                                                                | 16.8                                                                                | 0.0                                                                                 | 17.8                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 33.5                                                                              | 63.2                                                                              | 63.9                                                                              | 148.8                                                                             | 39.2                                                                              | 40.1                                                                              | 36.1                                                                                | 0.0                                                                                 | 144.1                                                                               | 133.5                                                                               | 0.0                                                                                 | 59.2                                                                                |
| LnGrp LOS                    | C                                                                                 | E                                                                                 | E                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | D                                                                                   |                                                                                     | F                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 1616                                                                              |                                                                                   |                                                                                   | 1565                                                                              |                                                                                   |                                                                                     | 506                                                                                 |                                                                                     |                                                                                     | 909                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 60.7                                                                              |                                                                                   |                                                                                   | 58.4                                                                              |                                                                                   |                                                                                     | 130.3                                                                               |                                                                                     |                                                                                     | 90.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 53.0                                                                              | 10.3                                                                              | 41.7                                                                              | 12.0                                                                              | 56.0                                                                              | 22.0                                                                                | 30.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 10.0                                                                              | 48.0                                                                              | 6.0                                                                               | 36.0                                                                              | 7.0                                                                               | 51.0                                                                              | 17.0                                                                                | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.0                                                                              | 49.7                                                                              | 5.3                                                                               | 35.3                                                                              | 7.9                                                                               | 41.5                                                                              | 20.0                                                                                | 28.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                               | 0.0                                                                               | 7.1                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 73.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary 5: SE 15th St & US 20

Future PM Peak 30HV  
12/23/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL     | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|---------|------|------|
| Lane Configurations           |      | ↑↑   | ↗    | ↖    | ↑↑   |      | ↖    |      | ↗    |         | ↕    |      |
| Traffic Volume (veh/h)        | 0    | 1710 | 315  | 230  | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Future Volume (veh/h)         | 0    | 1710 | 315  | 230  | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0       | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.97 | 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        | 0    | 1885 | 1900 | 1900 | 1885 | 0    | 1900 | 0    | 1900 | 1870    | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 0    | 1781 | 268  | 240  | 1365 | 0    | 312  | 0    | 69   | 0       | 0    | 0    |
| Peak Hour Factor              | 0.92 | 0.96 | 0.96 | 0.96 | 0.96 | 0.92 | 0.96 | 0.92 | 0.96 | 0.92    | 0.92 | 0.92 |
| Percent Heavy Veh, %          | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 2       | 2    | 2    |
| Cap, veh/h                    | 0    | 1855 | 809  | 250  | 2515 | 0    | 372  | 0    | 0    | 0       | 2    | 0    |
| Arrive On Green               | 0.00 | 0.52 | 0.52 | 0.14 | 0.70 | 0.00 | 0.21 | 0.00 | 0.01 | 0.00    | 0.00 | 0.00 |
| Sat Flow, veh/h               | 0    | 3676 | 1563 | 1810 | 3676 | 0    | 1810 | 312  |      | 0-74814 |      | 0    |
| Grp Volume(v), veh/h          | 0    | 1781 | 268  | 240  | 1365 | 0    | 312  | 39.9 |      | 0       | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln      | 0    | 1791 | 1563 | 1810 | 1791 | 0    | 1810 | D    |      | 0       | 1870 | 0    |
| Q Serve(g_s), s               | 0.0  | 41.4 | 8.7  | 11.4 | 15.9 | 0.0  | 14.4 |      |      | 0.0     | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s         | 0.0  | 41.4 | 8.7  | 11.4 | 15.9 | 0.0  | 14.4 |      |      | 0.0     | 0.0  | 0.0  |
| Prop In Lane                  | 0.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      |      | 0.00    |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 0    | 1855 | 809  | 250  | 2515 | 0    | 372  |      |      | 0       | 2    | 0    |
| V/C Ratio(X)                  | 0.00 | 0.96 | 0.33 | 0.96 | 0.54 | 0.00 | 0.84 |      |      | 0.00    | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h         | 0    | 1856 | 810  | 250  | 2516 | 0    | 542  |      |      | 0       | 398  | 0    |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |      | 1.00    | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |      |      | 0.00    | 0.00 | 0.00 |
| Uniform Delay (d), s/veh      | 0.0  | 20.1 | 12.2 | 37.2 | 6.2  | 0.0  | 33.1 |      |      | 0.0     | 0.0  | 0.0  |
| Incr Delay (d2), s/veh        | 0.0  | 12.9 | 0.5  | 45.6 | 0.4  | 0.0  | 6.8  |      |      | 0.0     | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |      |      | 0.0     | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 0.0  | 18.4 | 2.9  | 8.1  | 4.6  | 0.0  | 6.8  |      |      | 0.0     | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |         |      |      |
| LnGrp Delay(d), s/veh         | 0.0  | 33.0 | 12.7 | 82.8 | 6.7  | 0.0  | 39.9 |      |      | 0.0     | 0.0  | 0.0  |
| LnGrp LOS                     |      | C    | B    | F    | A    |      | D    |      |      |         |      |      |
| Approach Vol, veh/h           | 2049 |      |      | 1605 |      |      |      |      |      | 0       |      |      |
| Approach Delay, s/veh         | 30.4 |      |      | 18.0 |      |      |      |      |      | 0.0     |      |      |
| Approach LOS                  | C    |      |      | B    |      |      |      |      |      |         |      |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4    | 6    |      |      |      |      |         |      |      |
| Phs Duration (G+Y+Rc), s      | 6.0  | 49.0 | 21.9 | 0.0  | 65.0 |      |      |      |      |         |      |      |
| Change Period (Y+Rc), s       | 5.0  | 5.0  | 5.0  | 4.5  | 5.0  |      |      |      |      |         |      |      |
| Max Green Setting (Gmax), s   | 1.0  | 44.0 | 25.0 | 18.0 | 60.0 |      |      |      |      |         |      |      |
| Max Q Clear Time (g_c+1/3), s | 1.0  | 43.4 | 16.4 | 0.0  | 17.9 |      |      |      |      |         |      |      |
| Green Ext Time (p_c), s       | 0.0  | 0.6  | 0.5  | 0.0  | 25.6 |      |      |      |      |         |      |      |

## Intersection Summary

|                           |      |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 26.1 |
| HCM 6th LOS               | C    |

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 334                                                                               |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT  | NBR                                                                               | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |      |  |  |      |      |      |  |      |  |      |
| Traffic Vol, veh/h       | 70                                                                                | 1680                                                                              | 80   | 105                                                                               | 1345                                                                              | 95   | 0    | 0    | 145                                                                               | 25   | 5                                                                                   | 125  |
| Future Vol, veh/h        | 70                                                                                | 1680                                                                              | 80   | 105                                                                               | 1345                                                                              | 95   | 0    | 0    | 145                                                                               | 25   | 5                                                                                   | 125  |
| Conflicting Peds, #/hr   | 4                                                                                 | 0                                                                                 | 4    | 4                                                                                 | 0                                                                                 | 4    | 1    | 0    | 2                                                                                 | 2    | 0                                                                                   | 1    |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop | Stop                                                                              | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -    | None                                                                              | -    | -                                                                                   | None |
| Storage Length           | 100                                                                               | -                                                                                 | -    | 100                                                                               | -                                                                                 | -    | -    | -    | 0                                                                                 | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92   | 92   | 92   | 92                                                                                | 92   | 92                                                                                  | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 1                                                                                 | 0    | 0                                                                                 | 1                                                                                 | 0    | 0    | 0    | 0                                                                                 | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 76                                                                                | 1826                                                                              | 87   | 114                                                                               | 1462                                                                              | 103  | 0    | 0    | 158                                                                               | 27   | 5                                                                                   | 136  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|---|-----|--------|------|-----|
| Conflicting Flow All | 1569   | 0 | 0 | 1917   | 0 | 0 | -      | - | 963 | 2813   | 3815 | 788 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -   | 1746   | 1746 | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -   | 1067   | 2069 | -   |
| Critical Hdwy        | 4.14   | - | - | 4.1    | - | - | -      | - | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.22   | - | - | 2.2    | - | - | -      | - | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 417    | - | - | 313    | - | - | 0      | 0 | 259 | ~ 9    | ~ 4  | 338 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -   | 91     | 142  | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -   | 241    | 97   | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 415    | - | - | 312    | - | - | -      | - | 258 | ~ 2    | ~ 2  | 336 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -   | ~ 2    | ~ 2  | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -   | 74     | 90   | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -   | 76     | 79   | -   |

| Approach               | EB  | WB  | NB   | SB        |
|------------------------|-----|-----|------|-----------|
| HCM Control Delay, s/v | 0.6 | 1.6 | 38.6 | \$ 7860.6 |
| HCM LOS                |     |     | E    | F         |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1     |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-----------|
| Capacity (veh/h)          | 258   | 415   | -   | -   | 312   | -   | -   | 10        |
| HCM Lane V/C Ratio        | 0.611 | 0.183 | -   | -   | 0.366 | -   | -   | 16.848    |
| HCM Control Delay (s/veh) | 38.6  | 15.6  | -   | -   | 23    | -   | -   | \$ 7860.6 |
| HCM Lane LOS              | E     | C     | -   | -   | C     | -   | -   | F         |
| HCM 95th %tile Q (veh)    | 3.6   | 0.7   | -   | -   | 1.6   | -   | -   | 22.6      |

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

# HCM 6th Signalized Intersection Summary

## 7: Purcell Blvd & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 290                                                                               | 1420                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 145                                                                                 | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 250                                                                                 |
| Future Volume (veh/h)        | 290                                                                               | 1420                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 145                                                                                 | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 250                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                                |                                                                                     | 0.94                                                                                | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 309                                                                               | 1511                                                                              | 144                                                                               | 239                                                                               | 1223                                                                              | 108                                                                               | 154                                                                                 | 266                                                                                 | 88                                                                                  | 144                                                                                 | 266                                                                                 | 231                                                                                 |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 343                                                                               | 1636                                                                              | 154                                                                               | 263                                                                               | 1504                                                                              | 132                                                                               | 157                                                                                 | 310                                                                                 | 464                                                                                 | 157                                                                                 | 310                                                                                 | 559                                                                                 |
| Arrive On Green              | 0.19                                                                              | 0.50                                                                              | 0.49                                                                              | 0.15                                                                              | 0.45                                                                              | 0.45                                                                              | 0.09                                                                                | 0.16                                                                                | 0.16                                                                                | 0.09                                                                                | 0.16                                                                                | 0.16                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3294                                                                              | 311                                                                               | 1795                                                                              | 3315                                                                              | 292                                                                               | 1810                                                                                | 1900                                                                                | 1520                                                                                | 1810                                                                                | 1900                                                                                | 1551                                                                                |
| Grp Volume(v), veh/h         | 309                                                                               | 815                                                                               | 840                                                                               | 239                                                                               | 659                                                                               | 672                                                                               | 154                                                                                 | 266                                                                                 | 88                                                                                  | 144                                                                                 | 266                                                                                 | 231                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1813                                                                              | 1795                                                                              | 1791                                                                              | 1816                                                                              | 1810                                                                                | 1900                                                                                | 1520                                                                                | 1810                                                                                | 1900                                                                                | 1551                                                                                |
| Q Serve(g_s), s              | 25.0                                                                              | 63.0                                                                              | 65.2                                                                              | 19.7                                                                              | 47.7                                                                              | 48.1                                                                              | 12.7                                                                                | 20.4                                                                                | 6.5                                                                                 | 11.8                                                                                | 20.4                                                                                | 17.0                                                                                |
| Cycle Q Clear(g_c), s        | 25.0                                                                              | 63.0                                                                              | 65.2                                                                              | 19.7                                                                              | 47.7                                                                              | 48.1                                                                              | 12.7                                                                                | 20.4                                                                                | 6.5                                                                                 | 11.8                                                                                | 20.4                                                                                | 17.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 343                                                                               | 889                                                                               | 901                                                                               | 263                                                                               | 813                                                                               | 824                                                                               | 157                                                                                 | 310                                                                                 | 464                                                                                 | 157                                                                                 | 310                                                                                 | 559                                                                                 |
| V/C Ratio(X)                 | 0.90                                                                              | 0.92                                                                              | 0.93                                                                              | 0.91                                                                              | 0.81                                                                              | 0.82                                                                              | 0.98                                                                                | 0.86                                                                                | 0.19                                                                                | 0.92                                                                                | 0.86                                                                                | 0.41                                                                                |
| Avail Cap(c_a), veh/h        | 374                                                                               | 889                                                                               | 901                                                                               | 263                                                                               | 813                                                                               | 824                                                                               | 157                                                                                 | 317                                                                                 | 469                                                                                 | 157                                                                                 | 317                                                                                 | 564                                                                                 |
| 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     | 59.4                                                                              | 34.9                                                                              | 35.5                                                                              | 63.0                                                                              | 35.4                                                                              | 35.6                                                                              | 68.4                                                                                | 61.0                                                                                | 39.4                                                                                | 68.0                                                                                | 61.0                                                                                | 36.9                                                                                |
| Incr Delay (d2), s/veh       | 22.5                                                                              | 15.6                                                                              | 17.6                                                                              | 32.0                                                                              | 8.6                                                                               | 8.7                                                                               | 66.2                                                                                | 19.5                                                                                | 0.1                                                                                 | 48.2                                                                                | 19.5                                                                                | 0.4                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 13.6                                                                              | 30.6                                                                              | 32.4                                                                              | 11.3                                                                              | 22.5                                                                              | 23.0                                                                              | 8.8                                                                                 | 11.6                                                                                | 2.5                                                                                 | 7.6                                                                                 | 11.5                                                                                | 6.5                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 81.9                                                                              | 50.4                                                                              | 53.1                                                                              | 95.0                                                                              | 44.0                                                                              | 44.3                                                                              | 134.6                                                                               | 80.5                                                                                | 39.5                                                                                | 116.1                                                                               | 80.5                                                                                | 37.3                                                                                |
| LnGrp LOS                    | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                   | F                                                                                   | D                                                                                   | F                                                                                   | F                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 1964                                                                              |                                                                                   | 1570                                                                              |                                                                                   |                                                                                   |                                                                                   | 508                                                                                 |                                                                                     |                                                                                     |                                                                                     | 641                                                                                 |                                                                                     |
| Approach Delay, s/veh        | 56.5                                                                              |                                                                                   | 51.9                                                                              |                                                                                   |                                                                                   |                                                                                   | 89.8                                                                                |                                                                                     |                                                                                     |                                                                                     | 72.9                                                                                |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 26.0                                                                              | 78.5                                                                              | 17.0                                                                              | 28.5                                                                              | 32.4                                                                              | 72.1                                                                              | 17.0                                                                                | 28.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 21.0                                                                              | 73.0                                                                              | 12.0                                                                              | 24.0                                                                              | 30.0                                                                              | 64.0                                                                              | 12.0                                                                                | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 21.7                                                                              | 67.2                                                                              | 13.8                                                                              | 22.4                                                                              | 27.0                                                                              | 50.1                                                                              | 14.7                                                                                | 22.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 5.3                                                                               | 0.0                                                                               | 0.2                                                                               | 0.4                                                                               | 10.8                                                                              | 0.0                                                                                 | 0.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    | 60.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.3  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   | ↑    | ↑    | ↑↑   | ↑    | ↑    |
| Traffic Vol, veh/h       | 1635 | 65   | 105  | 1440 | 40   | 95   |
| Future Vol, veh/h        | 1635 | 65   | 105  | 1440 | 40   | 95   |
| Conflicting Peds, #/hr   | 0    | 5    | 5    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 100  | 100  | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 1    | 0    | 0    | 1    | 0    | 1    |
| Mvmt Flow                | 1721 | 68   | 111  | 1516 | 42   | 100  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1794   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.1    |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.2    |
| Pot Cap-1 Maneuver   | -      | -      | 349    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 347    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB | WB  | NB   |
|------------------------|----|-----|------|
| HCM Control Delay, s/v | 0  | 1.4 | 91.3 |
| HCM LOS                |    |     | F    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBL   | WBT |
|---------------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)          | 166   | -   | -   | 347   | -   |
| HCM Lane V/C Ratio        | 0.856 | -   | -   | 0.319 | -   |
| HCM Control Delay (s/veh) | 91.3  | -   | -   | 20.1  | -   |
| HCM Lane LOS              | F     | -   | -   | C     | -   |
| HCM 95th %tile Q (veh)    | 6     | -   | -   | 1.3   | -   |

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

# HCM 6th Signalized Intersection Summary 9: SE 27th St/NE 27th St & US 20

Future PM Peak 30HV  
12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 455                                                                               | 685                                                                               | 365                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Future Volume (veh/h)        | 455                                                                               | 685                                                                               | 365                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                               |                                                                                     | 0.97                                                                                | 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1870                                                                              | 1900                                                                               | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 469                                                                               | 706                                                                               | 0                                                                                 | 247                                                                               | 536                                                                               | 65                                                                                | 464                                                                                | 727                                                                                 | 224                                                                                 | 201                                                                                 | 1345                                                                                | 0                                                                                   |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                               | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                  | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 550                                                                               | 66                                                                                | 350                                                                                | 1039                                                                                | 320                                                                                 | 234                                                                                 | 1179                                                                                |                                                                                     |
| Arrive On Green              | 0.33                                                                              | 0.39                                                                              | 0.00                                                                              | 0.14                                                                              | 0.17                                                                              | 0.17                                                                              | 0.19                                                                               | 0.39                                                                                | 0.38                                                                                | 0.13                                                                                | 0.33                                                                                | 0.00                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3582                                                                              | 1598                                                                              | 1795                                                                              | 3172                                                                              | 383                                                                               | 1810                                                                               | 2673                                                                                | 824                                                                                 | 1781                                                                                | 3610                                                                                | 1610                                                                                |
| Grp Volume(v), veh/h         | 469                                                                               | 706                                                                               | 0                                                                                 | 247                                                                               | 299                                                                               | 302                                                                               | 464                                                                                | 487                                                                                 | 464                                                                                 | 201                                                                                 | 1345                                                                                | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1598                                                                              | 1795                                                                              | 1777                                                                              | 1778                                                                              | 1810                                                                               | 1791                                                                                | 1705                                                                                | 1781                                                                                | 1805                                                                                | 1610                                                                                |
| Q Serve(g_s), s              | 30.0                                                                              | 26.9                                                                              | 0.0                                                                               | 20.6                                                                              | 25.1                                                                              | 25.3                                                                              | 29.0                                                                               | 34.3                                                                                | 34.3                                                                                | 16.6                                                                                | 49.0                                                                                | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 30.0                                                                              | 26.9                                                                              | 0.0                                                                               | 20.6                                                                              | 25.1                                                                              | 25.3                                                                              | 29.0                                                                               | 34.3                                                                                | 34.3                                                                                | 16.6                                                                                | 49.0                                                                                | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.22                                                                              | 1.00                                                                               |                                                                                     | 0.48                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 308                                                                               | 308                                                                               | 350                                                                                | 696                                                                                 | 663                                                                                 | 234                                                                                 | 1179                                                                                |                                                                                     |
| V/C Ratio(X)                 | 1.30                                                                              | 0.84                                                                              |                                                                                   | 0.98                                                                              | 0.97                                                                              | 0.98                                                                              | 1.33                                                                               | 0.70                                                                                | 0.70                                                                                | 0.86                                                                                | 1.14                                                                                |                                                                                     |
| Avail Cap(c_a), veh/h        | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 308                                                                               | 308                                                                               | 350                                                                                | 696                                                                                 | 663                                                                                 | 249                                                                                 | 1179                                                                                |                                                                                     |
| HCM Platoon Ratio            | 1.67                                                                              | 1.67                                                                              | 1.67                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 50.0                                                                              | 43.3                                                                              | 0.0                                                                               | 64.3                                                                              | 61.6                                                                              | 61.8                                                                              | 60.5                                                                               | 38.5                                                                                | 38.7                                                                                | 63.8                                                                                | 50.5                                                                                | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 152.2                                                                             | 8.8                                                                               | 0.0                                                                               | 51.7                                                                              | 43.4                                                                              | 45.3                                                                              | 165.4                                                                              | 5.8                                                                                 | 6.1                                                                                 | 23.3                                                                                | 73.9                                                                                | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 27.5                                                                              | 11.7                                                                              | 0.0                                                                               | 13.0                                                                              | 15.0                                                                              | 15.3                                                                              | 29.3                                                                               | 16.1                                                                                | 15.4                                                                                | 9.0                                                                                 | 33.9                                                                                | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 202.2                                                                             | 52.1                                                                              | 0.0                                                                               | 116.0                                                                             | 105.1                                                                             | 107.2                                                                             | 225.9                                                                              | 44.3                                                                                | 44.8                                                                                | 87.1                                                                                | 124.4                                                                               | 0.0                                                                                 |
| LnGrp LOS                    | F                                                                                 | D                                                                                 |                                                                                   | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                  | D                                                                                   | D                                                                                   | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Vol, veh/h          | 1175                                                                              |                                                                                   |                                                                                   | 848                                                                               |                                                                                   |                                                                                   | 1415                                                                               |                                                                                     |                                                                                     | 1546                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 112.0                                                                             |                                                                                   |                                                                                   | 109.0                                                                             |                                                                                   |                                                                                   | 104.0                                                                              |                                                                                     |                                                                                     | 119.5                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 25.0                                                                              | 39.0                                                                              | 33.0                                                                              | 53.0                                                                              | 34.0                                                                              | 30.0                                                                              | 23.7                                                                               | 62.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 20.0                                                                              | 34.0                                                                              | 28.0                                                                              | 48.0                                                                              | 29.0                                                                              | 25.0                                                                              | 20.0                                                                               | 56.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 22.6                                                                              | 28.9                                                                              | 31.0                                                                              | 51.0                                                                              | 32.0                                                                              | 27.3                                                                              | 18.6                                                                               | 36.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                | 4.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

|                           |       |
|---------------------------|-------|
| HCM 6th Ctrl Delay, s/veh | 111.5 |
| HCM 6th LOS               | F     |

## Notes

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

HCM 6th TWSC  
10: NE Bellevue Dr/NE Benson Way & US 20

Future PM Peak 30HV  
12/23/2024

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 23.2                                                                              |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |      |  |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Future Vol, veh/h        | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 12   | 12                                                                                | 0                                                                                 | 1    | 1    | 0                                                                                 | 1    | 1    | 0                                                                                   | 1    |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 75                                                                                | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 94                                                                                | 94                                                                                | 94   | 94                                                                                | 94                                                                                | 94   | 94   | 94                                                                                | 94   | 94   | 94                                                                                  | 94   |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 0    | 0                                                                                 | 2                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 96                                                                                | 973                                                                               | 122  | 37                                                                                | 729                                                                               | 32   | 37   | 5                                                                                 | 106  | 32   | 5                                                                                   | 112  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 762    | 0 | 0 | 1107   | 0 | 0 | 1680   | 2074 | 561 | 1502   | 2119 | 383 |
| Stage 1              | -      | - | - | -      | - | - | 1238   | 1238 | -   | 820    | 820  | -   |
| Stage 2              | -      | - | - | -      | - | - | 442    | 836  | -   | 682    | 1299 | -   |
| Critical Hdwy        | 4.1    | - | - | 4.1    | - | - | 7.5    | 6.5  | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.2    | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 859    | - | - | 638    | - | - | 63     | 54   | 476 | 86     | 51   | 621 |
| Stage 1              | -      | - | - | -      | - | - | 189    | 250  | -   | 340    | 392  | -   |
| Stage 2              | -      | - | - | -      | - | - | 570    | 385  | -   | 411    | 234  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 858    | - | - | 631    | - | - | 40     | 45   | 470 | 53     | 42   | 620 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 40     | 45   | -   | 53     | 42   | -   |
| Stage 1              | -      | - | - | -      | - | - | 166    | 220  | -   | 302    | 368  | -   |
| Stage 2              | -      | - | - | -      | - | - | 433    | 362  | -   | 275    | 205  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB    |  |  | SB    |  |  |
|------------------------|-----|--|--|-----|--|--|-------|--|--|-------|--|--|
| HCM Control Delay, s/v | 0.8 |  |  | 0.5 |  |  | 243.5 |  |  | 103.2 |  |  |
| HCM LOS                |     |  |  |     |  |  | F     |  |  | F     |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 117   | 858   | -   | -   | 631   | -   | -   | 164   |
| HCM Lane V/C Ratio        | 1.273 | 0.112 | -   | -   | 0.059 | -   | -   | 0.908 |
| HCM Control Delay (s/veh) | 243.5 | 9.7   | -   | -   | 11.1  | -   | -   | 103.2 |
| HCM Lane LOS              | F     | A     | -   | -   | B     | -   | -   | F     |
| HCM 95th %tile Q (veh)    | 9.7   | 0.4   | -   | -   | 0.2   | -   | -   | 6.6   |

## LANE SUMMARY

 Site: 101 [US 20 & Hamby - Future NB (Site Folder: US20 No Build)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site

Site Category: (None)

Roundabout

| Lane Use and Performance |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
|--------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-------------------|----------|-------------|-------------|-----------|--------------|
|                          | Demand Flows  |      | Arrival Flows |      | Cap.  | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 95% Back Of Queue |          | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
|                          | [ Total veh/h | HV % | [ Total veh/h | HV % | veh/h | v/c       | %          | sec         |                  | [ Veh             | Dist ] m |             | m           | %         | %            |
| South: Ward Road         |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 576           | 1.0  | 576           | 1.0  | 677   | 0.851     | 100        | 34.5        | LOS D            | 12.0              | 84.6     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 576           | 1.0  | 576           | 1.0  |       | 0.851     |            | 34.5        | LOS D            | 12.0              | 84.6     |             |             |           |              |
| East: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 755           | 3.5  | 755           | 3.5  | 786   | 0.962     | 100        | 55.9        | LOS F            | 30.8              | 222.1    | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 755           | 3.5  | 755           | 3.5  |       | 0.962     |            | 55.9        | LOS F            | 30.8              | 222.1    |             |             |           |              |
| North: Hamby Road        |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 511           | 1.6  | 511           | 1.6  | 597   | 0.856     | 100        | 39.0        | LOS E            | 10.3              | 73.1     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 511           | 1.6  | 511           | 1.6  |       | 0.856     |            | 39.0        | LOS E            | 10.3              | 73.1     |             |             |           |              |
| West: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 870           | 2.0  | 870           | 2.0  | 708   | 1.229     | 100        | 237.2       | LOS F            | 116.1             | 826.5    | Full        | 500         | 0.0       | 22.7         |
| Approach                 | 870           | 2.0  | 870           | 2.0  |       | 1.229     |            | 237.2       | LOS F            | 116.1             | 826.5    |             |             |           |              |
| All Vehicles             | 2712          | 2.2  | 2712          | 2.2  |       | 1.229     |            | 106.3       | LOS F            | 116.1             | 826.5    |             |             |           |              |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>d</sup> Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) |     |     |     |       |     |            |           |            |          |     |              |
|-----------------------------|-----|-----|-----|-------|-----|------------|-----------|------------|----------|-----|--------------|
| South: Ward Road            |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From S To Exit:             | W   | N   | E   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 103 | 293 | 179 | 576   | 1.0 | 677        | 0.851     | 100        | NA       | NA  |              |
| Approach                    | 103 | 293 | 179 | 576   | 1.0 |            | 0.851     |            |          |     |              |
| East: US 20                 |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From E To Exit:             | S   | W   | N   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 217 | 473 | 65  | 755   | 3.5 | 786        | 0.962     | 100        | NA       | NA  |              |

|                          |      |     |     |       |     |       |       |       |       |     |      |
|--------------------------|------|-----|-----|-------|-----|-------|-------|-------|-------|-----|------|
| Approach                 | 217  | 473 | 65  | 755   | 3.5 |       | 0.962 |       |       |     |      |
| North: Hamby Road        |      |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2   | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From N                   |      |     |     |       |     |       | Satn  | Util. | SL    | SL  | Lane |
| To Exit:                 | E    | S   | W   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          |      |     |     |       |     | veh/h |       |       |       |     |      |
| Lane 1                   | 76   | 337 | 98  | 511   | 1.6 | 597   | 0.856 | 100   | NA    | NA  |      |
| Approach                 | 76   | 337 | 98  | 511   | 1.6 |       | 0.856 |       |       |     |      |
| West: US 20              |      |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2   | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From W                   |      |     |     |       |     |       | Satn  | Util. | SL    | SL  | Lane |
| To Exit:                 | N    | E   | S   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          |      |     |     |       |     | veh/h |       |       |       |     |      |
| Lane 1                   | 147  | 587 | 136 | 870   | 2.0 | 708   | 1.229 | 100   | NA    | NA  |      |
| Approach                 | 147  | 587 | 136 | 870   | 2.0 |       | 1.229 |       |       |     |      |
| Total %HV Deg.Satn (v/c) |      |     |     |       |     |       |       |       |       |     |      |
| All Vehicles             | 2712 | 2.2 |     | 1.229 |     |       |       |       |       |     |      |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

| Merge Analysis                                                 |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |
|----------------------------------------------------------------|------------------|---------------------|------------------------|-----------------|--------------------------|------------------|-----------------------|---------------------|---------------|----------------|-----------------|--|
|                                                                | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |  |
| There are no Exit Short Lanes for Merge Analysis at this Site. |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |

| Variable Demand Analysis |                           |                            |                                       |                          |
|--------------------------|---------------------------|----------------------------|---------------------------------------|--------------------------|
|                          | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
| South: Ward Road         |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| East: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| North: Hamby Road        |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| West: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 81.0                       | 412.2                                 | NA                       |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 5.9  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↰    | ↱    |      | ↰    | ↱    |      | ↰    | ↱    |      | ↰    | ↱    |
| Traffic Vol, veh/h       | 40   | 730  | 5    | 15   | 630  | 35   | 25   | 5    | 15   | 20   | 15   | 40   |
| Future Vol, veh/h        | 40   | 730  | 5    | 15   | 630  | 35   | 25   | 5    | 15   | 20   | 15   | 40   |
| 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           | -    | -    | 68   | -    | -    | 93   | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 0    | 2    | 0    | 12   | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 43   | 793  | 5    | 16   | 685  | 38   | 27   | 5    | 16   | 22   | 16   | 43   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 723    | 0 | 0 | 798    | 0 | 0 | 1645   | 1634 | 793 | 1609   | 1601 | 685 |
| Stage 1              | -      | - | - | -      | - | - | 879    | 879  | -   | 717    | 717  | -   |
| Stage 2              | -      | - | - | -      | - | - | 766    | 755  | -   | 892    | 884  | -   |
| Critical Hdwy        | 4.1    | - | - | 4.22   | - | - | 7.1    | 6.5  | 6.2 | 7.1    | 6.5  | 6.2 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.308  | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 889    | - | - | 782    | - | - | 80     | 102  | 392 | 85     | 107  | 452 |
| Stage 1              | -      | - | - | -      | - | - | 345    | 368  | -   | 424    | 437  | -   |
| Stage 2              | -      | - | - | -      | - | - | 398    | 420  | -   | 339    | 366  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 889    | - | - | 782    | - | - | 57     | 90   | 392 | 71     | 94   | 452 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 57     | 90   | -   | 71     | 94   | -   |
| Stage 1              | -      | - | - | -      | - | - | 315    | 336  | -   | 387    | 422  | -   |
| Stage 2              | -      | - | - | -      | - | - | 334    | 406  | -   | 292    | 334  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|----|--|--|
| HCM Control Delay, s/v | 0.5 |  |  | 0.2 |  |  | 93.6 |  |  | 60 |  |  |
| HCM LOS                |     |  |  |     |  |  | F    |  |  | F  |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 85    | 889   | -   | -   | 782   | -   | -   | 142   |
| HCM Lane V/C Ratio        | 0.575 | 0.049 | -   | -   | 0.021 | -   | -   | 0.574 |
| HCM Control Delay (s/veh) | 93.6  | 9.3   | 0   | -   | 9.7   | 0   | -   | 60    |
| HCM Lane LOS              | F     | A     | A   | -   | A     | A   | -   | F     |
| HCM 95th %tile Q (veh)    | 2.6   | 0.2   | -   | -   | 0.1   | -   | -   | 2.9   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Future Vol, veh/h        | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | Free                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 220                                                                               | -                                                                                 | -                                                                                 | 140                                                                               | 0                                                                                 | 80                                                                                |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                |
| Heavy Vehicles, %        | 0                                                                                 | 3                                                                                 | 9                                                                                 | 11                                                                                | 25                                                                                | 1                                                                                 |
| Mvmt Flow                | 478                                                                               | 363                                                                               | 269                                                                               | 16                                                                                | 5                                                                                 | 484                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2          |
|----------------------|--------|--------|-----------------|
| Conflicting Flow All | 269    | 0      | 0 1588 269      |
| Stage 1              | -      | -      | - - 269 -       |
| Stage 2              | -      | -      | - - 1319 -      |
| Critical Hdwy        | 4.1    | -      | - - 6.65 6.21   |
| Critical Hdwy Stg 1  | -      | -      | - - 5.65 -      |
| Critical Hdwy Stg 2  | -      | -      | - - 5.65 -      |
| Follow-up Hdwy       | 2.2    | -      | - - 3.725 3.309 |
| Pot Cap-1 Maneuver   | 1306   | -      | 0 105 772       |
| Stage 1              | -      | -      | 0 726 -         |
| Stage 2              | -      | -      | 0 224 -         |
| Platoon blocked, %   | -      | -      |                 |
| Mov Cap-1 Maneuver   | 1306   | -      | - 67 772        |
| Mov Cap-2 Maneuver   | -      | -      | - 67 -          |
| Stage 1              | -      | -      | - 460 -         |
| Stage 2              | -      | -      | - 224 -         |

| Approach               | EB  | WB | SB   |
|------------------------|-----|----|------|
| HCM Control Delay, s/v | 5.3 | 0  | 17.6 |
| HCM LOS                |     |    | C    |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | SBLn1 | SBLn2 |
|---------------------------|-------|-----|-----|-------|-------|
| Capacity (veh/h)          | 1306  | -   | -   | 67    | 772   |
| HCM Lane V/C Ratio        | 0.366 | -   | -   | 0.082 | 0.626 |
| HCM Control Delay (s/veh) | 9.3   | -   | -   | 63.5  | 17.1  |
| HCM Lane LOS              | A     | -   | -   | F     | C     |
| HCM 95th %tile Q (veh)    | 1.7   | -   | -   | 0.3   | 4.5   |

## **APPENDIX C: FUTURE (2042) ALTERNATIVE MOBILITY TARGETS EVALUATION – STEP 3**

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# HCM 6th Signalized Intersection Summary 1: NE 3rd St & US 20

Future PM Peak 30HV PHF 1.0

12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Future Volume (veh/h)        | 350                                                                               | 820                                                                               | 245                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 245                                                                                 | 300                                                                                 | 790                                                                                 | 145                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.96                                                                                | 1.00                                                                                |                                                                                     | 0.94                                                                                |
| 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       | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                              | 1870                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 350                                                                               | 820                                                                               | 227                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 675                                                                                 | 222                                                                                 | 300                                                                                 | 790                                                                                 | 136                                                                                 |
| Peak Hour Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 2                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 305                                                                               | 970                                                                               | 268                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 654                                                                                 | 215                                                                                 | 267                                                                                 | 876                                                                                 | 151                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.35                                                                              | 0.34                                                                              | 0.15                                                                              | 0.33                                                                              | 0.33                                                                              | 0.11                                                                                | 0.25                                                                                | 0.24                                                                                | 0.15                                                                                | 0.29                                                                                | 0.28                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 2771                                                                              | 767                                                                               | 1781                                                                              | 1900                                                                              | 1533                                                                              | 1795                                                                                | 2616                                                                                | 860                                                                                 | 1781                                                                                | 3047                                                                                | 524                                                                                 |
| Grp Volume(v), veh/h         | 350                                                                               | 534                                                                               | 513                                                                               | 245                                                                               | 700                                                                               | 255                                                                               | 200                                                                                 | 462                                                                                 | 435                                                                                 | 300                                                                                 | 468                                                                                 | 458                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1805                                                                              | 1733                                                                              | 1781                                                                              | 1900                                                                              | 1533                                                                              | 1795                                                                                | 1791                                                                                | 1686                                                                                | 1781                                                                                | 1805                                                                                | 1766                                                                                |
| Q Serve(g_s), s              | 27.0                                                                              | 43.7                                                                              | 43.8                                                                              | 21.7                                                                              | 53.0                                                                              | 16.6                                                                              | 17.8                                                                                | 40.0                                                                                | 40.0                                                                                | 24.0                                                                                | 39.9                                                                                | 39.9                                                                                |
| Cycle Q Clear(g_c), s        | 27.0                                                                              | 43.7                                                                              | 43.8                                                                              | 21.7                                                                              | 53.0                                                                              | 16.6                                                                              | 17.8                                                                                | 40.0                                                                                | 40.0                                                                                | 24.0                                                                                | 39.9                                                                                | 39.9                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.44                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.51                                                                                | 1.00                                                                                |                                                                                     | 0.30                                                                                |
| Lane Grp Cap(c), veh/h       | 305                                                                               | 632                                                                               | 607                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 448                                                                                 | 421                                                                                 | 267                                                                                 | 519                                                                                 | 508                                                                                 |
| V/C Ratio(X)                 | 1.15                                                                              | 0.85                                                                              | 0.85                                                                              | 0.92                                                                              | 1.11                                                                              | 0.34                                                                              | 0.99                                                                                | 1.03                                                                                | 1.03                                                                                | 1.12                                                                                | 0.90                                                                                | 0.90                                                                                |
| Avail Cap(c_a), veh/h        | 305                                                                               | 632                                                                               | 607                                                                               | 267                                                                               | 629                                                                               | 745                                                                               | 202                                                                                 | 448                                                                                 | 421                                                                                 | 267                                                                                 | 519                                                                                 | 508                                                                                 |
| 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     | 66.5                                                                              | 48.0                                                                              | 48.2                                                                              | 67.0                                                                              | 53.5                                                                              | 25.8                                                                              | 70.9                                                                                | 60.0                                                                                | 60.3                                                                                | 68.0                                                                                | 54.8                                                                                | 55.0                                                                                |
| Incr Delay (d2), s/veh       | 97.1                                                                              | 9.8                                                                               | 10.2                                                                              | 33.3                                                                              | 70.7                                                                              | 0.1                                                                               | 60.3                                                                                | 50.9                                                                                | 52.4                                                                                | 92.2                                                                                | 18.9                                                                                | 19.2                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 20.8                                                                              | 21.6                                                                              | 20.9                                                                              | 12.4                                                                              | 37.8                                                                              | 6.3                                                                               | 11.6                                                                                | 24.4                                                                                | 23.1                                                                                | 17.7                                                                                | 20.8                                                                                | 20.4                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 163.6                                                                             | 57.8                                                                              | 58.4                                                                              | 100.3                                                                             | 124.2                                                                             | 25.9                                                                              | 131.2                                                                               | 110.9                                                                               | 112.7                                                                               | 160.2                                                                               | 73.7                                                                                | 74.2                                                                                |
| LnGrp LOS                    | F                                                                                 | E                                                                                 | E                                                                                 | F                                                                                 | F                                                                                 | C                                                                                 | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | E                                                                                   | E                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 1397                                                                              |                                                                                   |                                                                                   | 1200                                                                              |                                                                                   |                                                                                     | 1097                                                                                |                                                                                     |                                                                                     | 1226                                                                                |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 84.5                                                                              |                                                                                   |                                                                                   | 98.5                                                                              |                                                                                   |                                                                                     | 115.3                                                                               |                                                                                     |                                                                                     | 95.1                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 22.0                                                                              | 50.0                                                                              | 31.0                                                                              | 57.0                                                                              | 28.0                                                                              | 44.0                                                                              | 28.0                                                                                | 60.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 17.0                                                                              | 45.0                                                                              | 26.0                                                                              | 52.0                                                                              | 23.0                                                                              | 39.0                                                                              | 23.0                                                                                | 55.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 19.8                                                                              | 41.9                                                                              | 29.0                                                                              | 55.0                                                                              | 26.0                                                                              | 42.0                                                                              | 23.7                                                                                | 45.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 6.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 97.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 50   | 1295 | 20   | 65   | 980  | 130  | 0    | 0    | 210  | 0    | 0    | 220  |
| Future Vol, veh/h        | 50   | 1295 | 20   | 65   | 980  | 130  | 0    | 0    | 210  | 0    | 0    | 220  |
| Conflicting Peds, #/hr   | 1    | 0    | 1    | 1    | 0    | 1    | 2    | 0    | 0    | 0    | 0    | 2    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | 50   | -    | -    | 100  | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  |
| Heavy Vehicles, %        | 0    | 1    | 5    | 2    | 1    | 0    | 0    | 0    | 1    | 0    | 0    | 0    |
| Mvmt Flow                | 50   | 1295 | 20   | 65   | 980  | 130  | 0    | 0    | 210  | 0    | 0    | 220  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      | Minor2 |   |     |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|-----|
| Conflicting Flow All | 1111   | 0 | 0 | 1316   | 0 | 0 | -      | - | 659  | -      | - | 558 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy        | 4.1    | - | - | 4.14   | - | - | -      | - | 6.92 | -      | - | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.22   | - | - | -      | - | 3.31 | -      | - | 3.3 |
| Pot Cap-1 Maneuver   | 636    | - | - | 521    | - | - | 0      | 0 | 409  | 0      | 0 | 478 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Mov Cap-1 Maneuver   | 635    | - | - | 521    | - | - | -      | - | 409  | -      | - | 477 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s/v | 0.4 |  |  | 0.7 |  |  | 22.7 |  |  | 18.8 |  |  |
| HCM LOS                |     |  |  |     |  |  | C    |  |  | C    |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 409   | 635   | -   | -   | 521   | -   | -   | 477   |
| HCM Lane V/C Ratio        | 0.513 | 0.079 | -   | -   | 0.125 | -   | -   | 0.461 |
| HCM Control Delay (s/veh) | 22.7  | 11.2  | -   | -   | 12.9  | -   | -   | 18.8  |
| HCM Lane LOS              | C     | B     | -   | -   | B     | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 2.8   | 0.3   | -   | -   | 0.4   | -   | -   | 2.4   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Future Vol, veh/h        | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |
| Conflicting Peds, #/hr   | 1    | 0    | 5    | 5    | 0    | 1    | 4    | 0    | 0    | 0    | 0    | 4    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  |
| Heavy Vehicles, %        | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1490 | 15   | 0    | 1120 | 25   | 0    | 0    | 30   | 0    | 0    | 55   |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |     |
|----------------------|--------|---|--------|---|--------|---|--------|-----|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | 758 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9 |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -   |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3 |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 354 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -   |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 352 |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -   |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |

| Approach               | EB | WB | NB   | SB   |
|------------------------|----|----|------|------|
| HCM Control Delay, s/v | 0  | 0  | 16.2 | 13.8 |
| HCM LOS                |    |    | C    | B    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 352   | -   | -   | -   | -   | 462   |
| HCM Lane V/C Ratio        | 0.085 | -   | -   | -   | -   | 0.119 |
| HCM Control Delay (s/veh) | 16.2  | -   | -   | -   | -   | 13.8  |
| HCM Lane LOS              | C     | -   | -   | -   | -   | B     |
| HCM 95th %tile Q (veh)    | 0.3   | -   | -   | -   | -   | 0.4   |

# HCM 6th Signalized Intersection Summary 4: NE 8th St & US 20

Future PM Peak 30HV PHF 1.0  
12/23/2024

|                              |  |                                                                                    |  |  |                                                                                    |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |   |                                                                                   |  |   |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 145                                                                               | 1305                                                                                                                                                                | 55                                                                                | 250                                                                               | 1015                                                                                                                                                                | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Future Volume (veh/h)        | 145                                                                               | 1305                                                                                                                                                                | 55                                                                                | 250                                                                               | 1015                                                                                                                                                                | 205                                                                               | 60                                                                                  | 285                                                                                 | 140                                                                                 | 355                                                                                 | 425                                                                                 | 70                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 0.95                                                                              | 1.00                                                                              |                                                                                                                                                                     | 0.95                                                                              | 0.99                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| 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       | 1900                                                                              | 1885                                                                                                                                                                | 1900                                                                              | 1900                                                                              | 1885                                                                                                                                                                | 1900                                                                              | 1900                                                                                | 1885                                                                                | 1900                                                                                | 1900                                                                                | 1885                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 145                                                                               | 1305                                                                                                                                                                | 53                                                                                | 250                                                                               | 1015                                                                                                                                                                | 191                                                                               | 60                                                                                  | 285                                                                                 | 125                                                                                 | 355                                                                                 | 425                                                                                 | 65                                                                                  |
| Peak Hour Factor             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 1                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 251                                                                               | 1419                                                                                                                                                                | 58                                                                                | 250                                                                               | 1284                                                                                                                                                                | 241                                                                               | 221                                                                                 | 266                                                                                 | 117                                                                                 | 333                                                                                 | 503                                                                                 | 77                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.41                                                                                                                                                                | 0.40                                                                              | 0.09                                                                              | 0.43                                                                                                                                                                | 0.42                                                                              | 0.05                                                                                | 0.22                                                                                | 0.21                                                                                | 0.15                                                                                | 0.32                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3500                                                                                                                                                                | 142                                                                               | 1810                                                                              | 2983                                                                                                                                                                | 560                                                                               | 1810                                                                                | 1221                                                                                | 536                                                                                 | 1810                                                                                | 1588                                                                                | 243                                                                                 |
| Grp Volume(v), veh/h         | 145                                                                               | 667                                                                                                                                                                 | 691                                                                               | 250                                                                               | 608                                                                                                                                                                 | 598                                                                               | 60                                                                                  | 0                                                                                   | 410                                                                                 | 355                                                                                 | 0                                                                                   | 490                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                                                                                                                | 1851                                                                              | 1810                                                                              | 1791                                                                                                                                                                | 1751                                                                              | 1810                                                                                | 0                                                                                   | 1757                                                                                | 1810                                                                                | 0                                                                                   | 1831                                                                                |
| Q Serve(g_s), s              | 5.5                                                                               | 42.1                                                                                                                                                                | 42.3                                                                              | 11.0                                                                              | 35.0                                                                                                                                                                | 35.3                                                                              | 3.0                                                                                 | 0.0                                                                                 | 26.0                                                                                | 18.0                                                                                | 0.0                                                                                 | 29.8                                                                                |
| Cycle Q Clear(g_c), s        | 5.5                                                                               | 42.1                                                                                                                                                                | 42.3                                                                              | 11.0                                                                              | 35.0                                                                                                                                                                | 35.3                                                                              | 3.0                                                                                 | 0.0                                                                                 | 26.0                                                                                | 18.0                                                                                | 0.0                                                                                 | 29.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 0.08                                                                              | 1.00                                                                              |                                                                                                                                                                     | 0.32                                                                              | 1.00                                                                                |                                                                                     | 0.30                                                                                | 1.00                                                                                |                                                                                     | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 251                                                                               | 726                                                                                                                                                                 | 750                                                                               | 250                                                                               | 771                                                                                                                                                                 | 754                                                                               | 221                                                                                 | 0                                                                                   | 383                                                                                 | 333                                                                                 | 0                                                                                   | 580                                                                                 |
| V/C Ratio(X)                 | 0.58                                                                              | 0.92                                                                                                                                                                | 0.92                                                                              | 1.00                                                                              | 0.79                                                                                                                                                                | 0.79                                                                              | 0.27                                                                                | 0.00                                                                                | 1.07                                                                                | 1.07                                                                                | 0.00                                                                                | 0.84                                                                                |
| Avail Cap(c_a), veh/h        | 251                                                                               | 735                                                                                                                                                                 | 760                                                                               | 250                                                                               | 780                                                                                                                                                                 | 763                                                                               | 233                                                                                 | 0                                                                                   | 383                                                                                 | 333                                                                                 | 0                                                                                   | 580                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.2                                                                              | 33.6                                                                                                                                                                | 33.7                                                                              | 32.5                                                                              | 29.3                                                                                                                                                                | 29.5                                                                              | 34.4                                                                                | 0.0                                                                                 | 46.9                                                                                | 35.8                                                                                | 0.0                                                                                 | 38.1                                                                                |
| Incr Delay (d2), s/veh       | 2.8                                                                               | 17.0                                                                                                                                                                | 16.9                                                                              | 57.4                                                                              | 6.1                                                                                                                                                                 | 6.3                                                                               | 0.5                                                                                 | 0.0                                                                                 | 66.5                                                                                | 67.8                                                                                | 0.0                                                                                 | 10.8                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.5                                                                               | 21.1                                                                                                                                                                | 21.8                                                                              | 8.6                                                                               | 15.8                                                                                                                                                                | 15.7                                                                              | 1.4                                                                                 | 0.0                                                                                 | 18.5                                                                                | 14.0                                                                                | 0.0                                                                                 | 14.8                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.0                                                                              | 50.6                                                                                                                                                                | 50.6                                                                              | 89.9                                                                              | 35.4                                                                                                                                                                | 35.9                                                                              | 34.9                                                                                | 0.0                                                                                 | 113.3                                                                               | 103.6                                                                               | 0.0                                                                                 | 48.9                                                                                |
| LnGrp LOS                    | C                                                                                 | D                                                                                                                                                                   | D                                                                                 | F                                                                                 | D                                                                                                                                                                   | D                                                                                 | C                                                                                   |                                                                                     | F                                                                                   | F                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 1503                                                                                                                                                                |                                                                                   |                                                                                   | 1456                                                                                                                                                                |                                                                                   |                                                                                     | 470                                                                                 |                                                                                     |                                                                                     | 845                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 48.3                                                                                                                                                                |                                                                                   |                                                                                   | 44.9                                                                                                                                                                |                                                                                   |                                                                                     | 103.3                                                                               |                                                                                     |                                                                                     | 71.9                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 52.4                                                                                                                                                                | 10.2                                                                              | 41.8                                                                              | 12.0                                                                                                                                                                | 55.4                                                                              | 22.0                                                                                | 30.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 10.0                                                                              | 48.0                                                                                                                                                                | 6.0                                                                               | 36.0                                                                              | 7.0                                                                                                                                                                 | 51.0                                                                              | 17.0                                                                                | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 13.0                                                                              | 44.3                                                                                                                                                                | 5.0                                                                               | 31.8                                                                              | 7.5                                                                                                                                                                 | 37.3                                                                              | 20.0                                                                                | 28.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.1                                                                                                                                                                 | 0.0                                                                               | 0.9                                                                               | 0.0                                                                                                                                                                 | 9.1                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                                                                                                     | 57.9                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                                                                                                     | E                                                                                 |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary 5: SE 15th St & US 20

Future PM Peak 30HV PHF 1.0  
12/23/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL     | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|---------|------|------|
| Lane Configurations           |      | ↑↑   | ↑    | ↑    | ↑↑   |      | ↑    |      | ↑    |         | ↕    |      |
| Traffic Volume (veh/h)        | 0    | 1710 | 315  | 230  | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Future Volume (veh/h)         | 0    | 1710 | 315  | 230  | 1310 | 0    | 300  | 0    | 190  | 0       | 0    | 0    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0       | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.97 | 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        | 0    | 1885 | 1900 | 1900 | 1885 | 0    | 1900 | 0    | 1900 | 1870    | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 0    | 1710 | 257  | 230  | 1310 | 0    | 300  | 0    | 66   | 0       | 0    | 0    |
| Peak Hour Factor              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00    | 1.00 | 1.00 |
| Percent Heavy Veh, %          | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 2       | 2    | 2    |
| Cap, veh/h                    | 0    | 1867 | 815  | 253  | 2534 | 0    | 361  | 0    | 0    | 0       | 2    | 0    |
| Arrive On Green               | 0.00 | 0.52 | 0.52 | 0.14 | 0.71 | 0.00 | 0.20 | 0.00 | 0.01 | 0.00    | 0.00 | 0.00 |
| Sat Flow, veh/h               | 0    | 3676 | 1563 | 1810 | 3676 | 0    | 1810 | 300  |      | 0-93518 |      | 0    |
| Grp Volume(v), veh/h          | 0    | 1710 | 257  | 230  | 1310 | 0    | 300  | 38.8 |      | 0       | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln      | 0    | 1791 | 1563 | 1810 | 1791 | 0    | 1810 | D    |      | 0       | 1870 | 0    |
| Q Serve(g_s), s               | 0.0  | 37.6 | 8.1  | 10.8 | 14.5 | 0.0  | 13.7 |      |      | 0.0     | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s         | 0.0  | 37.6 | 8.1  | 10.8 | 14.5 | 0.0  | 13.7 |      |      | 0.0     | 0.0  | 0.0  |
| Prop In Lane                  | 0.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      |      | 0.00    |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 0    | 1867 | 815  | 253  | 2534 | 0    | 361  |      |      | 0       | 2    | 0    |
| V/C Ratio(X)                  | 0.00 | 0.92 | 0.32 | 0.91 | 0.52 | 0.00 | 0.83 |      |      | 0.00    | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h         | 0    | 1875 | 818  | 253  | 2541 | 0    | 547  |      |      | 0       | 381  | 0    |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |      | 1.00    | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |      |      | 0.00    | 0.00 | 0.00 |
| Uniform Delay (d), s/veh      | 0.0  | 18.9 | 11.8 | 36.5 | 5.8  | 0.0  | 33.0 |      |      | 0.0     | 0.0  | 0.0  |
| Incr Delay (d2), s/veh        | 0.0  | 7.9  | 0.5  | 33.7 | 0.4  | 0.0  | 5.7  |      |      | 0.0     | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |      |      | 0.0     | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 0.0  | 15.7 | 2.7  | 7.0  | 4.1  | 0.0  | 6.4  |      |      | 0.0     | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |         |      |      |
| LnGrp Delay(d), s/veh         | 0.0  | 26.7 | 12.3 | 70.2 | 6.2  | 0.0  | 38.8 |      |      | 0.0     | 0.0  | 0.0  |
| LnGrp LOS                     |      | C    | B    | E    | A    |      | D    |      |      |         |      |      |
| Approach Vol, veh/h           | 1967 |      |      |      | 1540 |      |      |      | 0    |         |      |      |
| Approach Delay, s/veh         | 24.8 |      |      |      | 15.7 |      |      |      | 0.0  |         |      |      |
| Approach LOS                  | C    |      |      |      | B    |      |      |      |      |         |      |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4    | 6    |      |      |      |      |         |      |      |
| Phs Duration (G+Y+Rc), s      | 48.0 | 48.8 | 21.2 | 0.0  | 64.8 |      |      |      |      |         |      |      |
| Change Period (Y+Rc), s       | 5.0  | 5.0  | 5.0  | 4.5  | 5.0  |      |      |      |      |         |      |      |
| Max Green Setting (Gmax), s   | 44.0 | 44.0 | 25.0 | 18.0 | 60.0 |      |      |      |      |         |      |      |
| Max Q Clear Time (g_c+I12, s) | 39.6 | 39.6 | 15.7 | 0.0  | 16.5 |      |      |      |      |         |      |      |
| Green Ext Time (p_c), s       | 0.0  | 4.2  | 0.5  | 0.0  | 24.8 |      |      |      |      |         |      |      |
| Intersection Summary          |      |      |      |      |      |      |      |      |      |         |      |      |
| HCM 6th Ctrl Delay, s/veh     |      |      | 22.2 |      |      |      |      |      |      |         |      |      |
| HCM 6th LOS                   |      |      | C    |      |      |      |      |      |      |         |      |      |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2    |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1750 | 80   | 0    | 1345 | 95   | 0    | 0    | 145  | 0    | 0    | 125  |
| Future Vol, veh/h        | 0    | 1750 | 80   | 0    | 1345 | 95   | 0    | 0    | 145  | 0    | 0    | 125  |
| Conflicting Peds, #/hr   | 4    | 0    | 4    | 4    | 0    | 4    | 1    | 0    | 2    | 2    | 0    | 1    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  | 100  |
| Heavy Vehicles, %        | 2    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1750 | 80   | 0    | 1345 | 95   | 0    | 0    | 145  | 0    | 0    | 125  |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |     |
|----------------------|--------|---|--------|---|--------|---|--------|-----|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | 921 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9 |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -   |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3 |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 276 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -   |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 274 |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -   |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |

| Approach               | EB | WB | NB | SB   |
|------------------------|----|----|----|------|
| HCM Control Delay, s/v | 0  | 0  | 32 | 19.6 |
| HCM LOS                |    |    | D  | C    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 274   | -   | -   | -   | -   | 370   |
| HCM Lane V/C Ratio        | 0.529 | -   | -   | -   | -   | 0.338 |
| HCM Control Delay (s/veh) | 32    | -   | -   | -   | -   | 19.6  |
| HCM Lane LOS              | D     | -   | -   | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 2.9   | -   | -   | -   | -   | 1.5   |

# HCM 6th Signalized Intersection Summary

Future PM Peak 30HV PHF 1.0

7: Purcell Blvd & US 20

12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 310                                                                               | 1445                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 125                                                                                | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 165                                                                                 |
| Future Volume (veh/h)        | 310                                                                               | 1445                                                                              | 140                                                                               | 225                                                                               | 1150                                                                              | 105                                                                               | 125                                                                                | 250                                                                                 | 145                                                                                 | 135                                                                                 | 250                                                                                 | 165                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                               |                                                                                     | 0.94                                                                                | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 310                                                                               | 1445                                                                              | 135                                                                               | 225                                                                               | 1150                                                                              | 101                                                                               | 125                                                                                | 250                                                                                 | 83                                                                                  | 135                                                                                 | 250                                                                                 | 132                                                                                 |
| Peak Hour Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 344                                                                               | 1662                                                                              | 154                                                                               | 257                                                                               | 1515                                                                              | 133                                                                               | 157                                                                                | 304                                                                                 | 474                                                                                 | 157                                                                                 | 304                                                                                 | 554                                                                                 |
| Arrive On Green              | 0.19                                                                              | 0.50                                                                              | 0.50                                                                              | 0.14                                                                              | 0.46                                                                              | 0.45                                                                              | 0.09                                                                               | 0.16                                                                                | 0.16                                                                                | 0.09                                                                                | 0.16                                                                                | 0.16                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3300                                                                              | 306                                                                               | 1795                                                                              | 3316                                                                              | 291                                                                               | 1810                                                                               | 1900                                                                                | 1521                                                                                | 1810                                                                                | 1900                                                                                | 1550                                                                                |
| Grp Volume(v), veh/h         | 310                                                                               | 779                                                                               | 801                                                                               | 225                                                                               | 620                                                                               | 631                                                                               | 125                                                                                | 250                                                                                 | 83                                                                                  | 135                                                                                 | 250                                                                                 | 132                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1815                                                                              | 1795                                                                              | 1791                                                                              | 1816                                                                              | 1810                                                                               | 1900                                                                                | 1521                                                                                | 1810                                                                                | 1900                                                                                | 1550                                                                                |
| Q Serve(g_s), s              | 25.1                                                                              | 57.3                                                                              | 58.9                                                                              | 18.4                                                                              | 43.2                                                                              | 43.4                                                                              | 10.2                                                                               | 19.1                                                                                | 6.0                                                                                 | 11.0                                                                                | 19.1                                                                                | 9.1                                                                                 |
| Cycle Q Clear(g_c), s        | 25.1                                                                              | 57.3                                                                              | 58.9                                                                              | 18.4                                                                              | 43.2                                                                              | 43.4                                                                              | 10.2                                                                               | 19.1                                                                                | 6.0                                                                                 | 11.0                                                                                | 19.1                                                                                | 9.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 344                                                                               | 902                                                                               | 914                                                                               | 257                                                                               | 818                                                                               | 830                                                                               | 157                                                                                | 304                                                                                 | 474                                                                                 | 157                                                                                 | 304                                                                                 | 554                                                                                 |
| V/C Ratio(X)                 | 0.90                                                                              | 0.86                                                                              | 0.88                                                                              | 0.88                                                                              | 0.76                                                                              | 0.76                                                                              | 0.80                                                                               | 0.82                                                                                | 0.18                                                                                | 0.86                                                                                | 0.82                                                                                | 0.24                                                                                |
| Avail Cap(c_a), veh/h        | 374                                                                               | 902                                                                               | 914                                                                               | 263                                                                               | 818                                                                               | 830                                                                               | 157                                                                                | 317                                                                                 | 484                                                                                 | 157                                                                                 | 317                                                                                 | 564                                                                                 |
| 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     | 59.4                                                                              | 32.7                                                                              | 33.2                                                                              | 63.0                                                                              | 33.8                                                                              | 34.0                                                                              | 67.2                                                                               | 61.0                                                                                | 38.5                                                                                | 67.6                                                                                | 61.0                                                                                | 34.7                                                                                |
| Incr Delay (d2), s/veh       | 22.6                                                                              | 10.7                                                                              | 11.6                                                                              | 25.6                                                                              | 6.5                                                                               | 6.5                                                                               | 23.6                                                                               | 15.0                                                                                | 0.1                                                                                 | 34.9                                                                                | 15.0                                                                                | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 13.6                                                                              | 26.9                                                                              | 28.2                                                                              | 10.2                                                                              | 20.0                                                                              | 20.4                                                                              | 5.7                                                                                | 10.5                                                                                | 2.3                                                                                 | 6.6                                                                                 | 10.5                                                                                | 3.5                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 82.0                                                                              | 43.4                                                                              | 44.7                                                                              | 88.5                                                                              | 40.4                                                                              | 40.5                                                                              | 90.8                                                                               | 76.0                                                                                | 38.7                                                                                | 102.5                                                                               | 76.0                                                                                | 34.8                                                                                |
| LnGrp LOS                    | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                  | E                                                                                   | D                                                                                   | F                                                                                   | E                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 1890                                                                              |                                                                                   |                                                                                   | 1476                                                                              |                                                                                   |                                                                                   | 458                                                                                |                                                                                     |                                                                                     | 517                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 50.3                                                                              |                                                                                   |                                                                                   | 47.7                                                                              |                                                                                   |                                                                                   | 73.3                                                                               |                                                                                     |                                                                                     | 72.4                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 25.5                                                                              | 79.6                                                                              | 17.0                                                                              | 28.0                                                                              | 32.5                                                                              | 72.5                                                                              | 17.0                                                                               | 28.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 21.0                                                                              | 73.0                                                                              | 12.0                                                                              | 24.0                                                                              | 30.0                                                                              | 64.0                                                                              | 12.0                                                                               | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 20.4                                                                              | 60.9                                                                              | 13.0                                                                              | 21.1                                                                              | 27.1                                                                              | 45.4                                                                              | 12.2                                                                               | 21.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 10.6                                                                              | 0.0                                                                               | 0.4                                                                               | 0.4                                                                               | 13.0                                                                              | 0.0                                                                                | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    | 54.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.3  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   | ↑    | ↑    | ↑↑   | ↑    | ↑    |
| Traffic Vol, veh/h       | 1650 | 75   | 105  | 1440 | 40   | 95   |
| Future Vol, veh/h        | 1650 | 75   | 105  | 1440 | 40   | 95   |
| Conflicting Peds, #/hr   | 0    | 5    | 5    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 100  | 100  | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 100  | 100  | 100  | 100  | 100  | 100  |
| Heavy Vehicles, %        | 1    | 0    | 0    | 1    | 0    | 1    |
| Mvmt Flow                | 1650 | 75   | 105  | 1440 | 40   | 95   |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |      |
|----------------------|--------|--------|--------|---|------|------|
| Conflicting Flow All | 0      | 0      | 1730   | 0 | 2585 | 830  |
| Stage 1              | -      | -      | -      | - | 1655 | -    |
| Stage 2              | -      | -      | -      | - | 930  | -    |
| Critical Hdwy        | -      | -      | 4.1    | - | 6.8  | 6.92 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.8  | -    |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.8  | -    |
| Follow-up Hdwy       | -      | -      | 2.2    | - | 3.5  | 3.31 |
| Pot Cap-1 Maneuver   | -      | -      | 370    | - | ~ 21 | 315  |
| Stage 1              | -      | -      | -      | - | 144  | -    |
| Stage 2              | -      | -      | -      | - | 349  | -    |
| Platoon blocked, %   | -      | -      | -      | - | -    | -    |
| Mov Cap-1 Maneuver   | -      | -      | 368    | - | ~ 15 | 314  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 89   | -    |
| Stage 1              | -      | -      | -      | - | 143  | -    |
| Stage 2              | -      | -      | -      | - | 250  | -    |

| Approach               | EB | WB  | NB   |
|------------------------|----|-----|------|
| HCM Control Delay, s/v | 0  | 1.3 | 68.3 |
| HCM LOS                |    |     | F    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBL   | WBT |
|---------------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)          | 180   | -   | -   | 368   | -   |
| HCM Lane V/C Ratio        | 0.75  | -   | -   | 0.285 | -   |
| HCM Control Delay (s/veh) | 68.3  | -   | -   | 18.6  | -   |
| HCM Lane LOS              | F     | -   | -   | C     | -   |
| HCM 95th %tile Q (veh)    | 4.8   | -   | -   | 1.2   | -   |

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

# HCM 6th Signalized Intersection Summary 9: SE 27th St/NE 27th St & US 20

Future PM Peak 30HV PHF 1.0  
12/23/2024

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 455                                                                               | 685                                                                               | 380                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Future Volume (veh/h)        | 455                                                                               | 685                                                                               | 380                                                                               | 240                                                                               | 520                                                                               | 70                                                                                | 450                                                                                | 705                                                                                 | 240                                                                                 | 195                                                                                 | 1305                                                                                | 395                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                               |                                                                                     | 0.97                                                                                | 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1870                                                                              | 1900                                                                               | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 455                                                                               | 685                                                                               | 0                                                                                 | 240                                                                               | 520                                                                               | 63                                                                                | 450                                                                                | 705                                                                                 | 218                                                                                 | 195                                                                                 | 1305                                                                                | 0                                                                                   |
| Peak Hour Factor             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                  | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 550                                                                               | 66                                                                                | 350                                                                                | 1047                                                                                | 324                                                                                 | 228                                                                                 | 1179                                                                                |                                                                                     |
| Arrive On Green              | 0.33                                                                              | 0.39                                                                              | 0.00                                                                              | 0.14                                                                              | 0.17                                                                              | 0.17                                                                              | 0.19                                                                               | 0.39                                                                                | 0.39                                                                                | 0.13                                                                                | 0.33                                                                                | 0.00                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3582                                                                              | 1598                                                                              | 1795                                                                              | 3172                                                                              | 383                                                                               | 1810                                                                               | 2670                                                                                | 826                                                                                 | 1781                                                                                | 3610                                                                                | 1610                                                                                |
| Grp Volume(v), veh/h         | 455                                                                               | 685                                                                               | 0                                                                                 | 240                                                                               | 290                                                                               | 293                                                                               | 450                                                                                | 473                                                                                 | 450                                                                                 | 195                                                                                 | 1305                                                                                | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1598                                                                              | 1795                                                                              | 1777                                                                              | 1778                                                                              | 1810                                                                               | 1791                                                                                | 1705                                                                                | 1781                                                                                | 1805                                                                                | 1610                                                                                |
| Q Serve(g_s), s              | 30.0                                                                              | 25.7                                                                              | 0.0                                                                               | 19.9                                                                              | 24.2                                                                              | 24.4                                                                              | 29.0                                                                               | 32.7                                                                                | 32.8                                                                                | 16.1                                                                                | 49.0                                                                                | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 30.0                                                                              | 25.7                                                                              | 0.0                                                                               | 19.9                                                                              | 24.2                                                                              | 24.4                                                                              | 29.0                                                                               | 32.7                                                                                | 32.8                                                                                | 16.1                                                                                | 49.0                                                                                | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.22                                                                              | 1.00                                                                               |                                                                                     | 0.48                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 308                                                                               | 308                                                                               | 350                                                                                | 702                                                                                 | 668                                                                                 | 228                                                                                 | 1179                                                                                |                                                                                     |
| V/C Ratio(X)                 | 1.26                                                                              | 0.82                                                                              |                                                                                   | 0.95                                                                              | 0.94                                                                              | 0.95                                                                              | 1.29                                                                               | 0.67                                                                                | 0.67                                                                                | 0.85                                                                                | 1.11                                                                                |                                                                                     |
| Avail Cap(c_a), veh/h        | 362                                                                               | 836                                                                               |                                                                                   | 251                                                                               | 308                                                                               | 308                                                                               | 350                                                                                | 702                                                                                 | 668                                                                                 | 249                                                                                 | 1179                                                                                |                                                                                     |
| HCM Platoon Ratio            | 1.67                                                                              | 1.67                                                                              | 1.67                                                                              | 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                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 50.0                                                                              | 42.9                                                                              | 0.0                                                                               | 64.0                                                                              | 61.3                                                                              | 61.5                                                                              | 60.5                                                                               | 37.7                                                                                | 37.9                                                                                | 64.0                                                                                | 50.5                                                                                | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 136.4                                                                             | 7.4                                                                               | 0.0                                                                               | 44.1                                                                              | 36.1                                                                              | 37.9                                                                              | 148.8                                                                              | 5.1                                                                                 | 5.4                                                                                 | 22.0                                                                                | 60.5                                                                                | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 26.0                                                                              | 11.0                                                                              | 0.0                                                                               | 12.1                                                                              | 14.0                                                                              | 14.2                                                                              | 27.7                                                                               | 15.3                                                                                | 14.7                                                                                | 8.7                                                                                 | 31.7                                                                                | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 186.3                                                                             | 50.3                                                                              | 0.0                                                                               | 108.1                                                                             | 97.4                                                                              | 99.3                                                                              | 209.3                                                                              | 42.8                                                                                | 43.3                                                                                | 86.0                                                                                | 111.0                                                                               | 0.0                                                                                 |
| LnGrp LOS                    | F                                                                                 | D                                                                                 |                                                                                   | F                                                                                 | F                                                                                 | F                                                                                 | F                                                                                  | D                                                                                   | D                                                                                   | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Vol, veh/h          |                                                                                   | 1140                                                                              |                                                                                   |                                                                                   | 823                                                                               |                                                                                   |                                                                                    | 1373                                                                                |                                                                                     |                                                                                     | 1500                                                                                |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 104.6                                                                             |                                                                                   |                                                                                   | 101.2                                                                             |                                                                                   |                                                                                    | 97.5                                                                                |                                                                                     |                                                                                     | 107.8                                                                               |                                                                                     |
| Approach LOS                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                    | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 25.0                                                                              | 39.0                                                                              | 33.0                                                                              | 53.0                                                                              | 34.0                                                                              | 30.0                                                                              | 23.2                                                                               | 62.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 20.0                                                                              | 34.0                                                                              | 28.0                                                                              | 48.0                                                                              | 29.0                                                                              | 25.0                                                                              | 20.0                                                                               | 56.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 21.9                                                                              | 27.7                                                                              | 31.0                                                                              | 51.0                                                                              | 32.0                                                                              | 26.4                                                                              | 18.1                                                                               | 34.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                | 4.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 103.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Notes

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

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 13                                                                                |                                                                                   |      |                                                                                   |                                                                                   |      |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |  |  |      |  |  |      |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Future Vol, veh/h        | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 12   | 12                                                                                | 0                                                                                 | 1    | 1    | 0                                                                                 | 1    | 1    | 0                                                                                   | 1    |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                | Stop |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -                                                                                 | None | -    | -                                                                                   | None |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 75                                                                                | -                                                                                 | -    | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 100                                                                               | 100                                                                               | 100  | 100                                                                               | 100                                                                               | 100  | 100  | 100                                                                               | 100  | 100  | 100                                                                                 | 100  |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 0    | 0                                                                                 | 2                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 90                                                                                | 915                                                                               | 115  | 35                                                                                | 685                                                                               | 30   | 35   | 5                                                                                 | 100  | 30   | 5                                                                                   | 105  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 716    | 0 | 0 | 1042   | 0 | 0 | 1581   | 1951 | 528 | 1412   | 1993 | 360 |
| Stage 1              | -      | - | - | -      | - | - | 1165   | 1165 | -   | 771    | 771  | -   |
| Stage 2              | -      | - | - | -      | - | - | 416    | 786  | -   | 641    | 1222 | -   |
| Critical Hdwy        | 4.1    | - | - | 4.1    | - | - | 7.5    | 6.5  | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.2    | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 894    | - | - | 675    | - | - | 75     | 65   | 500 | 100    | 61   | 642 |
| Stage 1              | -      | - | - | -      | - | - | 210    | 271  | -   | 363    | 413  | -   |
| Stage 2              | -      | - | - | -      | - | - | 590    | 406  | -   | 434    | 254  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 893    | - | - | 667    | - | - | 51     | 55   | 494 | 66     | 51   | 641 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 51     | 55   | -   | 66     | 51   | -   |
| Stage 1              | -      | - | - | -      | - | - | 187    | 241  | -   | 326    | 391  | -   |
| Stage 2              | -      | - | - | -      | - | - | 461    | 384  | -   | 305    | 226  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB    |  |  | SB |  |  |
|------------------------|-----|--|--|-----|--|--|-------|--|--|----|--|--|
| HCM Control Delay, s/v | 0.8 |  |  | 0.5 |  |  | 130.9 |  |  | 60 |  |  |
| HCM LOS                |     |  |  |     |  |  | F     |  |  | F  |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 143   | 893   | -   | -   | 667   | -   | -   | 195   |
| HCM Lane V/C Ratio        | 0.979 | 0.101 | -   | -   | 0.052 | -   | -   | 0.718 |
| HCM Control Delay (s/veh) | 130.9 | 9.5   | -   | -   | 10.7  | -   | -   | 60    |
| HCM Lane LOS              | F     | A     | -   | -   | B     | -   | -   | F     |
| HCM 95th %tile Q (veh)    | 7.1   | 0.3   | -   | -   | 0.2   | -   | -   | 4.6   |

## LANE SUMMARY

 Site: 101 [US 20 & Hamby - Future NB (Step3) (Site Folder: US20 No Build)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Roundabout

| Lane Use and Performance |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
|--------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-------------------|----------|-------------|-------------|-----------|--------------|
|                          | Demand Flows  |      | Arrival Flows |      | Cap.  | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 95% Back Of Queue |          | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
|                          | [ Total veh/h | HV % | [ Total veh/h | HV % | veh/h | v/c       | %          | sec         |                  | [ Veh             | Dist ] m |             | m           | %         | %            |
| South: Ward Road         |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 530           | 1.0  | 530           | 1.0  | 659   | 0.805     | 100        | 29.3        | LOS D            | 9.3               | 65.5     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 530           | 1.0  | 530           | 1.0  |       | 0.805     |            | 29.3        | LOS D            | 9.3               | 65.5     |             |             |           |              |
| East: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 695           | 3.5  | 695           | 3.5  | 807   | 0.861     | 100        | 31.5        | LOS D            | 17.3              | 124.8    | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 695           | 3.5  | 695           | 3.5  |       | 0.861     |            | 31.5        | LOS D            | 17.3              | 124.8    |             |             |           |              |
| North: Hamby Road        |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 470           | 1.6  | 470           | 1.6  | 638   | 0.737     | 100        | 24.0        | LOS C            | 6.8               | 48.3     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 470           | 1.6  | 470           | 1.6  |       | 0.737     |            | 24.0        | LOS C            | 6.8               | 48.3     |             |             |           |              |
| West: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 800           | 2.0  | 800           | 2.0  | 746   | 1.073     | 100        | 115.3       | LOS F            | 59.5              | 424.1    | Full        | 500         | 0.0       | 0.3          |
| Approach                 | 800           | 2.0  | 800           | 2.0  |       | 1.073     |            | 115.3       | LOS F            | 59.5              | 424.1    |             |             |           |              |
| All Vehicles             | 2495          | 2.2  | 2495          | 2.2  |       | 1.073     |            | 56.5        | LOS F            | 59.5              | 424.1    |             |             |           |              |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>d</sup> Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) |     |     |     |       |     |            |           |            |          |     |              |
|-----------------------------|-----|-----|-----|-------|-----|------------|-----------|------------|----------|-----|--------------|
| South: Ward Road            |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From S To Exit:             | W   | N   | E   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 95  | 270 | 165 | 530   | 1.0 | 659        | 0.805     | 100        | NA       | NA  |              |
| Approach                    | 95  | 270 | 165 | 530   | 1.0 |            | 0.805     |            |          |     |              |
| East: US 20                 |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From E To Exit:             | S   | W   | N   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 200 | 435 | 60  | 695   | 3.5 | 807        | 0.861     | 100        | NA       | NA  |              |

|                          |       |     |     |       |     |       |       |       |       |     |      |
|--------------------------|-------|-----|-----|-------|-----|-------|-------|-------|-------|-----|------|
| Approach                 | 200   | 435 | 60  | 695   | 3.5 |       | 0.861 |       |       |     |      |
| North: Hamby Road        |       |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2    | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From N                   |       |     |     |       |     |       | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | E     | S   | W   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          | veh/h |     |     |       |     |       |       |       |       |     |      |
| Lane 1                   | 70    | 310 | 90  | 470   | 1.6 | 638   | 0.737 | 100   | NA    | NA  |      |
| Approach                 | 70    | 310 | 90  | 470   | 1.6 |       | 0.737 |       |       |     |      |
| West: US 20              |       |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2    | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From W                   |       |     |     |       |     |       | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | N     | E   | S   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          |       |     |     |       |     | veh/h |       |       |       |     |      |
| Lane 1                   | 135   | 540 | 125 | 800   | 2.0 | 746   | 1.073 | 100   | NA    | NA  |      |
| Approach                 | 135   | 540 | 125 | 800   | 2.0 |       | 1.073 |       |       |     |      |
| Total %HV Deg.Satn (v/c) |       |     |     |       |     |       |       |       |       |     |      |
| All Vehicles             | 2495  | 2.2 |     | 1.073 |     |       |       |       |       |     |      |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

|                                                                |        |        |         |           |         |          |           |      |          |      |       |       |
|----------------------------------------------------------------|--------|--------|---------|-----------|---------|----------|-----------|------|----------|------|-------|-------|
| Merge Analysis                                                 |        |        |         |           |         |          |           |      |          |      |       |       |
|                                                                | Exit   | Short  | Percent | Opposing  |         | Critical | Follow-up | Lane | Capacity | Deg. | Min.  | Merge |
|                                                                | Lane   | Lane   | Opng in | Flow Rate |         | Gap      | Headway   | Flow |          | Satn | Delay | Delay |
|                                                                | Number | Length | Lane    |           | % veh/h | sec      | sec       | Rate | veh/h    | v/c  | sec   | sec   |
|                                                                |        | m      |         | pcu/h     |         |          |           |      |          |      |       |       |
| There are no Exit Short Lanes for Merge Analysis at this Site. |        |        |         |           |         |          |           |      |          |      |       |       |

|                          |         |          |          |          |
|--------------------------|---------|----------|----------|----------|
| Variable Demand Analysis |         |          |          |          |
|                          | Initial | Residual | Time for | Duration |
|                          | Queued  | Queued   | Residual | of       |
|                          | Demand  | Demand   | Demand   | Oversatn |
|                          | veh     | veh      | to Clear |          |
|                          |         |          | sec      | sec      |
| South: Ward Road         |         |          |          |          |
| Lane 1                   | 0.0     | 0.0      | 0.0      | 0.0      |
| East: US 20              |         |          |          |          |
| Lane 1                   | 0.0     | 0.0      | 0.0      | 0.0      |
| North: Hamby Road        |         |          |          |          |
| Lane 1                   | 0.0     | 0.0      | 0.0      | 0.0      |
| West: US 20              |         |          |          |          |
| Lane 1                   | 0.0     | 27.1     | 130.7    | NA       |

| Intersection              |        |       |      |        |       |      |        |       |      |        |      |      |
|---------------------------|--------|-------|------|--------|-------|------|--------|-------|------|--------|------|------|
| Int Delay, s/veh          | 4      |       |      |        |       |      |        |       |      |        |      |      |
| Movement                  | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR  | SBL    | SBT  | SBR  |
| Lane Configurations       |        | ↕     | ↕    |        | ↕     | ↕    |        | ↕     |      |        | ↕    |      |
| Traffic Vol, veh/h        | 40     | 730   | 5    | 15     | 630   | 35   | 25     | 5     | 15   | 20     | 15   | 40   |
| Future Vol, veh/h         | 40     | 730   | 5    | 15     | 630   | 35   | 25     | 5     | 15   | 20     | 15   | 40   |
| 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            | -      | -     | 68   | -      | -     | 93   | -      | -     | -    | -      | -    | -    |
| Veh in Median Storage, #  | -      | 0     | -    | -      | 0     | -    | -      | 0     | -    | -      | 0    | -    |
| Grade, %                  | -      | 0     | -    | -      | 0     | -    | -      | 0     | -    | -      | 0    | -    |
| Peak Hour Factor          | 100    | 100   | 100  | 100    | 100   | 100  | 100    | 100   | 100  | 100    | 100  | 100  |
| Heavy Vehicles, %         | 0      | 2     | 0    | 12     | 3     | 0    | 0      | 0     | 0    | 0      | 0    | 0    |
| Mvmt Flow                 | 40     | 730   | 5    | 15     | 630   | 35   | 25     | 5     | 15   | 20     | 15   | 40   |
|                           |        |       |      |        |       |      |        |       |      |        |      |      |
| Major/Minor               | Major1 |       |      | Major2 |       |      | Minor1 |       |      | Minor2 |      |      |
| Conflicting Flow All      | 665    | 0     | 0    | 735    | 0     | 0    | 1515   | 1505  | 730  | 1483   | 1475 | 630  |
| Stage 1                   | -      | -     | -    | -      | -     | -    | 810    | 810   | -    | 660    | 660  | -    |
| Stage 2                   | -      | -     | -    | -      | -     | -    | 705    | 695   | -    | 823    | 815  | -    |
| Critical Hdwy             | 4.1    | -     | -    | 4.22   | -     | -    | 7.1    | 6.5   | 6.2  | 7.1    | 6.5  | 6.2  |
| Critical Hdwy Stg 1       | -      | -     | -    | -      | -     | -    | 6.1    | 5.5   | -    | 6.1    | 5.5  | -    |
| Critical Hdwy Stg 2       | -      | -     | -    | -      | -     | -    | 6.1    | 5.5   | -    | 6.1    | 5.5  | -    |
| Follow-up Hdwy            | 2.2    | -     | -    | 2.308  | -     | -    | 3.5    | 4     | 3.3  | 3.5    | 4    | 3.3  |
| Pot Cap-1 Maneuver        | 934    | -     | -    | 826    | -     | -    | 99     | 122   | 426  | 104    | 128  | 485  |
| Stage 1                   | -      | -     | -    | -      | -     | -    | 377    | 396   | -    | 455    | 463  | -    |
| Stage 2                   | -      | -     | -    | -      | -     | -    | 430    | 447   | -    | 371    | 394  | -    |
| Platoon blocked, %        |        | -     | -    |        | -     | -    |        |       |      |        |      |      |
| Mov Cap-1 Maneuver        | 934    | -     | -    | 826    | -     | -    | 76     | 110   | 426  | 90     | 115  | 485  |
| Mov Cap-2 Maneuver        | -      | -     | -    | -      | -     | -    | 76     | 110   | -    | 90     | 115  | -    |
| Stage 1                   | -      | -     | -    | -      | -     | -    | 350    | 367   | -    | 422    | 450  | -    |
| Stage 2                   | -      | -     | -    | -      | -     | -    | 370    | 434   | -    | 328    | 366  | -    |
|                           |        |       |      |        |       |      |        |       |      |        |      |      |
| Approach                  | EB     |       |      | WB     |       |      | NB     |       |      | SB     |      |      |
| HCM Control Delay, s/v    | 0.5    |       |      | 0.2    |       |      | 58.7   |       |      | 41.2   |      |      |
| HCM LOS                   |        |       |      |        |       |      | F      |       |      | E      |      |      |
|                           |        |       |      |        |       |      |        |       |      |        |      |      |
| Minor Lane/Major Mvmt     | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |      |        |      |      |
| Capacity (veh/h)          | 110    | 934   | -    | -      | 826   | -    | -      | 172   |      |        |      |      |
| HCM Lane V/C Ratio        | 0.409  | 0.043 | -    | -      | 0.018 | -    | -      | 0.436 |      |        |      |      |
| HCM Control Delay (s/veh) | 58.7   | 9     | 0    | -      | 9.4   | 0    | -      | 41.2  |      |        |      |      |
| HCM Lane LOS              | F      | A     | A    | -      | A     | A    | -      | E     |      |        |      |      |
| HCM 95th %tile Q (veh)    | 1.7    | 0.1   | -    | -      | 0.1   | -    | -      | 2     |      |        |      |      |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 7.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Future Vol, veh/h        | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | Free                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 220                                                                               | -                                                                                 | -                                                                                 | 140                                                                               | 0                                                                                 | 80                                                                                |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               |
| Heavy Vehicles, %        | 0                                                                                 | 3                                                                                 | 9                                                                                 | 11                                                                                | 25                                                                                | 1                                                                                 |
| Mvmt Flow                | 435                                                                               | 330                                                                               | 245                                                                               | 15                                                                                | 5                                                                                 | 440                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 245    | 0      | 0 1445 245    |
| Stage 1              | -      | -      | - 245 -       |
| Stage 2              | -      | -      | - 1200 -      |
| Critical Hdwy        | 4.1    | -      | - 6.65 6.21   |
| Critical Hdwy Stg 1  | -      | -      | - 5.65 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.65 -      |
| Follow-up Hdwy       | 2.2    | -      | - 3.725 3.309 |
| Pot Cap-1 Maneuver   | 1333   | -      | 0 129 796     |
| Stage 1              | -      | -      | 0 745 -       |
| Stage 2              | -      | -      | 0 257 -       |
| Platoon blocked, %   | -      | -      |               |
| Mov Cap-1 Maneuver   | 1333   | -      | - 87 796      |
| Mov Cap-2 Maneuver   | -      | -      | - 87 -        |
| Stage 1              | -      | -      | - 502 -       |
| Stage 2              | -      | -      | - 257 -       |

| Approach               | EB  | WB | SB   |
|------------------------|-----|----|------|
| HCM Control Delay, s/v | 5.1 | 0  | 15.4 |
| HCM LOS                |     |    | C    |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | SBLn1 | SBLn2 |
|---------------------------|-------|-----|-----|-------|-------|
| Capacity (veh/h)          | 1333  | -   | -   | 87    | 796   |
| HCM Lane V/C Ratio        | 0.326 | -   | -   | 0.057 | 0.553 |
| HCM Control Delay (s/veh) | 9     | -   | -   | 48.9  | 15    |
| HCM Lane LOS              | A     | -   | -   | E     | C     |
| HCM 95th %tile Q (veh)    | 1.4   | -   | -   | 0.2   | 3.4   |

## **APPENDIX D: FUTURE (2042) ALTERNATIVE MOBILITY TARGETS EVALUATION – STEP 4**

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# HCM 6th Signalized Intersection Summary

## 1: NE 3rd St & US 20

Future PM Peak AWD

12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 289                                                                               | 678                                                                               | 202                                                                               | 202                                                                               | 579                                                                               | 211                                                                               | 165                                                                                 | 558                                                                                 | 202                                                                                 | 248                                                                                 | 653                                                                                 | 120                                                                                 |
| Future Volume (veh/h)        | 289                                                                               | 678                                                                               | 202                                                                               | 202                                                                               | 579                                                                               | 211                                                                               | 165                                                                                 | 558                                                                                 | 202                                                                                 | 248                                                                                 | 653                                                                                 | 120                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                |
| 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       | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                              | 1870                                                                              | 1885                                                                                | 1885                                                                                | 1885                                                                                | 1870                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 311                                                                               | 729                                                                               | 199                                                                               | 217                                                                               | 623                                                                               | 227                                                                               | 177                                                                                 | 600                                                                                 | 191                                                                                 | 267                                                                                 | 702                                                                                 | 119                                                                                 |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 2                                                                                 | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 307                                                                               | 1014                                                                              | 277                                                                               | 247                                                                               | 632                                                                               | 754                                                                               | 203                                                                                 | 654                                                                                 | 208                                                                                 | 268                                                                                 | 871                                                                                 | 148                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.36                                                                              | 0.36                                                                              | 0.14                                                                              | 0.33                                                                              | 0.33                                                                              | 0.11                                                                                | 0.25                                                                                | 0.24                                                                                | 0.15                                                                                | 0.28                                                                                | 0.28                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 2788                                                                              | 761                                                                               | 1781                                                                              | 1900                                                                              | 1550                                                                              | 1795                                                                                | 2649                                                                                | 841                                                                                 | 1781                                                                                | 3063                                                                                | 519                                                                                 |
| Grp Volume(v), veh/h         | 311                                                                               | 472                                                                               | 456                                                                               | 217                                                                               | 623                                                                               | 227                                                                               | 177                                                                                 | 405                                                                                 | 386                                                                                 | 267                                                                                 | 413                                                                                 | 408                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1805                                                                              | 1744                                                                              | 1781                                                                              | 1900                                                                              | 1550                                                                              | 1795                                                                                | 1791                                                                                | 1700                                                                                | 1781                                                                                | 1805                                                                                | 1777                                                                                |
| Q Serve(g_s), s              | 27.0                                                                              | 35.9                                                                              | 36.0                                                                              | 19.0                                                                              | 51.9                                                                              | 14.1                                                                              | 15.5                                                                                | 35.1                                                                                | 35.3                                                                                | 23.9                                                                                | 33.9                                                                                | 34.0                                                                                |
| Cycle Q Clear(g_c), s        | 27.0                                                                              | 35.9                                                                              | 36.0                                                                              | 19.0                                                                              | 51.9                                                                              | 14.1                                                                              | 15.5                                                                                | 35.1                                                                                | 35.3                                                                                | 23.9                                                                                | 33.9                                                                                | 34.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.44                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.49                                                                                | 1.00                                                                                |                                                                                     | 0.29                                                                                |
| Lane Grp Cap(c), veh/h       | 307                                                                               | 656                                                                               | 634                                                                               | 247                                                                               | 632                                                                               | 754                                                                               | 203                                                                                 | 442                                                                                 | 419                                                                                 | 268                                                                                 | 513                                                                                 | 505                                                                                 |
| V/C Ratio(X)                 | 1.01                                                                              | 0.72                                                                              | 0.72                                                                              | 0.88                                                                              | 0.99                                                                              | 0.30                                                                              | 0.87                                                                                | 0.92                                                                                | 0.92                                                                                | 1.00                                                                                | 0.81                                                                                | 0.81                                                                                |
| Avail Cap(c_a), veh/h        | 307                                                                               | 656                                                                               | 634                                                                               | 268                                                                               | 632                                                                               | 754                                                                               | 203                                                                                 | 450                                                                                 | 427                                                                                 | 268                                                                                 | 521                                                                                 | 513                                                                                 |
| 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     | 66.2                                                                              | 43.7                                                                              | 43.9                                                                              | 67.3                                                                              | 52.8                                                                              | 24.9                                                                              | 69.5                                                                                | 58.4                                                                                | 58.7                                                                                | 67.6                                                                                | 52.9                                                                                | 53.1                                                                                |
| Incr Delay (d2), s/veh       | 55.0                                                                              | 3.3                                                                               | 3.4                                                                               | 23.8                                                                              | 32.0                                                                              | 0.1                                                                               | 30.4                                                                                | 22.8                                                                                | 24.2                                                                                | 53.4                                                                                | 8.9                                                                                 | 9.1                                                                                 |
| 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     | 17.3                                                                              | 16.9                                                                              | 16.4                                                                              | 10.4                                                                              | 30.5                                                                              | 5.4                                                                               | 8.8                                                                                 | 18.6                                                                                | 17.9                                                                                | 14.8                                                                                | 16.6                                                                                | 16.4                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 121.2                                                                             | 47.0                                                                              | 47.3                                                                              | 91.1                                                                              | 84.8                                                                              | 25.0                                                                              | 99.9                                                                                | 81.2                                                                                | 83.0                                                                                | 121.0                                                                               | 61.8                                                                                | 62.2                                                                                |
| LnGrp LOS                    | F                                                                                 | D                                                                                 | D                                                                                 | F                                                                                 | F                                                                                 | C                                                                                 | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | E                                                                                   | E                                                                                   |
| Approach Vol, veh/h          | 1239                                                                              |                                                                                   |                                                                                   |                                                                                   | 1067                                                                              |                                                                                   |                                                                                     |                                                                                     | 968                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 65.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 73.3                                                                              |                                                                                   |                                                                                     |                                                                                     | 85.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 22.0                                                                              | 49.3                                                                              | 31.0                                                                              | 57.0                                                                              | 28.0                                                                              | 43.3                                                                              | 26.1                                                                                | 61.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 17.0                                                                              | 45.0                                                                              | 26.0                                                                              | 52.0                                                                              | 23.0                                                                              | 39.0                                                                              | 23.0                                                                                | 55.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 17.5                                                                              | 36.0                                                                              | 29.0                                                                              | 53.9                                                                              | 25.9                                                                              | 37.3                                                                              | 21.0                                                                                | 38.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 5.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.1                                                                               | 0.1                                                                                 | 8.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    | 74.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 2.9                                                                               |                                                                                   |      |                                                                                   |                                                                                   |      |      |      |                                                                                   |      |      |                                                                                     |
| Movement                 | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL  | NBT  | NBR                                                                               | SBL  | SBT  | SBR                                                                                 |
| Lane Configurations      |  |  |      |  |  |      |      |      |  |      |      |  |
| Traffic Vol, veh/h       | 41                                                                                | 1070                                                                              | 17   | 54                                                                                | 810                                                                               | 107  | 0    | 0    | 174                                                                               | 0    | 0    | 182                                                                                 |
| Future Vol, veh/h        | 41                                                                                | 1070                                                                              | 17   | 54                                                                                | 810                                                                               | 107  | 0    | 0    | 174                                                                               | 0    | 0    | 182                                                                                 |
| Conflicting Peds, #/hr   | 1                                                                                 | 0                                                                                 | 1    | 1                                                                                 | 0                                                                                 | 1    | 2    | 0    | 0                                                                                 | 0    | 0    | 2                                                                                   |
| Sign Control             | Free                                                                              | Free                                                                              | Free | Free                                                                              | Free                                                                              | Free | Stop | Stop | Stop                                                                              | Stop | Stop | Stop                                                                                |
| RT Channelized           | -                                                                                 | -                                                                                 | None | -                                                                                 | -                                                                                 | None | -    | -    | None                                                                              | -    | -    | None                                                                                |
| Storage Length           | 50                                                                                | -                                                                                 | -    | 100                                                                               | -                                                                                 | -    | -    | -    | 0                                                                                 | -    | -    | 0                                                                                   |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Grade, %                 | -                                                                                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | -    | -    | 0    | -                                                                                 | -    | 0    | -                                                                                   |
| Peak Hour Factor         | 93                                                                                | 93                                                                                | 93   | 93                                                                                | 93                                                                                | 93   | 93   | 93   | 93                                                                                | 93   | 93   | 93                                                                                  |
| Heavy Vehicles, %        | 0                                                                                 | 1                                                                                 | 5    | 2                                                                                 | 1                                                                                 | 0    | 0    | 0    | 1                                                                                 | 0    | 0    | 0                                                                                   |
| Mvmt Flow                | 44                                                                                | 1151                                                                              | 18   | 58                                                                                | 871                                                                               | 115  | 0    | 0    | 187                                                                               | 0    | 0    | 196                                                                                 |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      | Minor2 |   |     |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|-----|
| Conflicting Flow All | 987    | 0 | 0 | 1170   | 0 | 0 | -      | - | 586  | -      | - | 496 |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy        | 4.1    | - | - | 4.14   | - | - | -      | - | 6.92 | -      | - | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.22   | - | - | -      | - | 3.31 | -      | - | 3.3 |
| Pot Cap-1 Maneuver   | 708    | - | - | 593    | - | - | 0      | 0 | 456  | 0      | 0 | 525 |
| Stage 1              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Stage 2              | -      | - | - | -      | - | - | 0      | 0 | -    | 0      | 0 | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Mov Cap-1 Maneuver   | 707    | - | - | 592    | - | - | -      | - | 456  | -      | - | 524 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 1              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |
| Stage 2              | -      | - | - | -      | - | - | -      | - | -    | -      | - | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s/v | 0.4 |  |  | 0.7 |  |  | 18.3 |  |  | 15.9 |  |  |
| HCM LOS                |     |  |  |     |  |  | C    |  |  | C    |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 456   | 707   | -   | -   | 592   | -   | -   | 524   |
| HCM Lane V/C Ratio        | 0.41  | 0.062 | -   | -   | 0.098 | -   | -   | 0.373 |
| HCM Control Delay (s/veh) | 18.3  | 10.4  | -   | -   | 11.7  | -   | -   | 15.9  |
| HCM Lane LOS              | C     | B     | -   | -   | B     | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 2     | 0.2   | -   | -   | 0.3   | -   | -   | 1.7   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.4  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1231 | 12   | 0    | 926  | 21   | 0    | 0    | 25   | 0    | 0    | 45   |
| Future Vol, veh/h        | 0    | 1231 | 12   | 0    | 926  | 21   | 0    | 0    | 25   | 0    | 0    | 45   |
| Conflicting Peds, #/hr   | 1    | 0    | 5    | 5    | 0    | 1    | 4    | 0    | 0    | 0    | 0    | 4    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1324 | 13   | 0    | 996  | 23   | 0    | 0    | 27   | 0    | 0    | 48   |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |     |
|----------------------|--------|---|--------|---|--------|---|--------|-----|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | 674 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9 |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -   |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -   |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3 |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 402 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | -   |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -   |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 400 |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -   |
| Stage 1              | -      | - | -      | - | -      | - | -      | -   |
| Stage 2              | -      | - | -      | - | -      | - | -      | -   |

| Approach               | EB | WB | NB   | SB   |
|------------------------|----|----|------|------|
| HCM Control Delay, s/v | 0  | 0  | 14.6 | 12.8 |
| HCM LOS                |    |    | B    | B    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 400   | -   | -   | -   | -   | 508   |
| HCM Lane V/C Ratio        | 0.067 | -   | -   | -   | -   | 0.095 |
| HCM Control Delay (s/veh) | 14.6  | -   | -   | -   | -   | 12.8  |
| HCM Lane LOS              | B     | -   | -   | -   | -   | B     |
| HCM 95th %tile Q (veh)    | 0.2   | -   | -   | -   | -   | 0.3   |

# HCM 6th Signalized Intersection Summary 4: NE 8th St & US 20

Future PM Peak AWD  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 120                                                                               | 1064                                                                              | 57                                                                                | 207                                                                               | 839                                                                               | 169                                                                               | 50                                                                                  | 236                                                                                 | 116                                                                                 | 293                                                                                 | 351                                                                                 | 58                                                                                  |
| Future Volume (veh/h)        | 120                                                                               | 1064                                                                              | 57                                                                                | 207                                                                               | 839                                                                               | 169                                                                               | 50                                                                                  | 236                                                                                 | 116                                                                                 | 293                                                                                 | 351                                                                                 | 58                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                              | 1885                                                                              | 1900                                                                              | 1900                                                                                | 1885                                                                                | 1900                                                                                | 1900                                                                                | 1885                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 129                                                                               | 1144                                                                              | 58                                                                                | 223                                                                               | 902                                                                               | 166                                                                               | 54                                                                                  | 254                                                                                 | 109                                                                                 | 315                                                                                 | 377                                                                                 | 57                                                                                  |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 281                                                                               | 1355                                                                              | 69                                                                                | 279                                                                               | 1258                                                                              | 232                                                                               | 277                                                                                 | 277                                                                                 | 119                                                                                 | 366                                                                                 | 519                                                                                 | 79                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.39                                                                              | 0.38                                                                              | 0.09                                                                              | 0.42                                                                              | 0.41                                                                              | 0.05                                                                                | 0.22                                                                                | 0.21                                                                                | 0.15                                                                                | 0.33                                                                                | 0.32                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3462                                                                              | 175                                                                               | 1810                                                                              | 3002                                                                              | 552                                                                               | 1810                                                                                | 1240                                                                                | 532                                                                                 | 1810                                                                                | 1595                                                                                | 241                                                                                 |
| Grp Volume(v), veh/h         | 129                                                                               | 592                                                                               | 610                                                                               | 223                                                                               | 538                                                                               | 530                                                                               | 54                                                                                  | 0                                                                                   | 363                                                                                 | 315                                                                                 | 0                                                                                   | 434                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1846                                                                              | 1810                                                                              | 1791                                                                              | 1763                                                                              | 1810                                                                                | 0                                                                                   | 1772                                                                                | 1810                                                                                | 0                                                                                   | 1836                                                                                |
| Q Serve(g_s), s              | 4.8                                                                               | 35.0                                                                              | 35.0                                                                              | 8.2                                                                               | 29.0                                                                              | 29.1                                                                              | 2.6                                                                                 | 0.0                                                                                 | 23.3                                                                                | 14.9                                                                                | 0.0                                                                                 | 24.3                                                                                |
| Cycle Q Clear(g_c), s        | 4.8                                                                               | 35.0                                                                              | 35.0                                                                              | 8.2                                                                               | 29.0                                                                              | 29.1                                                                              | 2.6                                                                                 | 0.0                                                                                 | 23.3                                                                                | 14.9                                                                                | 0.0                                                                                 | 24.3                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.10                                                                              | 1.00                                                                              |                                                                                   | 0.31                                                                              | 1.00                                                                                |                                                                                     | 0.30                                                                                | 1.00                                                                                |                                                                                     | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 281                                                                               | 701                                                                               | 722                                                                               | 279                                                                               | 751                                                                               | 739                                                                               | 277                                                                                 | 0                                                                                   | 396                                                                                 | 366                                                                                 | 0                                                                                   | 598                                                                                 |
| V/C Ratio(X)                 | 0.46                                                                              | 0.84                                                                              | 0.84                                                                              | 0.80                                                                              | 0.72                                                                              | 0.72                                                                              | 0.19                                                                                | 0.00                                                                                | 0.92                                                                                | 0.86                                                                                | 0.00                                                                                | 0.73                                                                                |
| Avail Cap(c_a), veh/h        | 285                                                                               | 753                                                                               | 777                                                                               | 279                                                                               | 800                                                                               | 787                                                                               | 293                                                                                 | 0                                                                                   | 396                                                                                 | 367                                                                                 | 0                                                                                   | 598                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 22.1                                                                              | 32.2                                                                              | 32.3                                                                              | 25.2                                                                              | 28.1                                                                              | 28.2                                                                              | 32.3                                                                                | 0.0                                                                                 | 44.3                                                                                | 29.2                                                                                | 0.0                                                                                 | 34.7                                                                                |
| Incr Delay (d2), s/veh       | 0.9                                                                               | 9.1                                                                               | 9.0                                                                               | 14.6                                                                              | 3.6                                                                               | 3.7                                                                               | 0.3                                                                                 | 0.0                                                                                 | 25.8                                                                                | 18.1                                                                                | 0.0                                                                                 | 4.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.1                                                                               | 16.4                                                                              | 16.9                                                                              | 4.5                                                                               | 12.8                                                                              | 12.7                                                                              | 1.2                                                                                 | 0.0                                                                                 | 13.1                                                                                | 8.1                                                                                 | 0.0                                                                                 | 11.3                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 23.0                                                                              | 41.4                                                                              | 41.2                                                                              | 39.7                                                                              | 31.7                                                                              | 31.9                                                                              | 32.6                                                                                | 0.0                                                                                 | 70.1                                                                                | 47.2                                                                                | 0.0                                                                                 | 38.9                                                                                |
| LnGrp LOS                    | C                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | C                                                                                   |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 1331                                                                              |                                                                                   | 1291                                                                              |                                                                                   |                                                                                   |                                                                                   | 417                                                                                 |                                                                                     | 749                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 39.5                                                                              |                                                                                   | 33.2                                                                              |                                                                                   |                                                                                   |                                                                                   | 65.3                                                                                |                                                                                     | 42.4                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 49.6                                                                              | 10.0                                                                              | 41.9                                                                              | 11.7                                                                              | 52.8                                                                              | 21.9                                                                                | 30.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 10.0                                                                              | 48.0                                                                              | 6.0                                                                               | 36.0                                                                              | 7.0                                                                               | 51.0                                                                              | 17.0                                                                                | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 10.2                                                                              | 37.0                                                                              | 4.6                                                                               | 26.3                                                                              | 6.8                                                                               | 31.1                                                                              | 16.9                                                                                | 25.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 7.5                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                               | 10.5                                                                              | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 40.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary 5: SE 15th St & US 20

Future PM Peak AWD  
12/23/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL     | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|---------|------|------|
| Lane Configurations           |      | ↑↑   | ↑    | ↑    | ↑↑   |      | ↑    |      | ↑    |         | ↑↓   |      |
| Traffic Volume (veh/h)        | 0    | 1413 | 260  | 190  | 1083 | 0    | 248  | 0    | 157  | 0       | 0    | 0    |
| Future Volume (veh/h)         | 0    | 1413 | 260  | 190  | 1083 | 0    | 248  | 0    | 157  | 0       | 0    | 0    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0       | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.97 | 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        | 0    | 1885 | 1900 | 1900 | 1885 | 0    | 1900 | 0    | 1900 | 1900    | 1900 | 1900 |
| Adj Flow Rate, veh/h          | 0    | 1472 | 190  | 198  | 1128 | 0    | 258  | 0    | 41   | 0       | 0    | 0    |
| Peak Hour Factor              | 0.92 | 0.96 | 0.96 | 0.96 | 0.96 | 0.92 | 0.96 | 0.92 | 0.96 | 0.92    | 0.92 | 0.92 |
| Percent Heavy Veh, %          | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0       | 0    | 0    |
| Cap, veh/h                    | 0    | 1900 | 829  | 256  | 2585 | 0    | 324  | 0    | 0    | 0       | 2    | 0    |
| Arrive On Green               | 0.00 | 0.53 | 0.53 | 0.14 | 0.72 | 0.00 | 0.18 | 0.00 | 0.01 | 0.00    | 0.00 | 0.00 |
| Sat Flow, veh/h               | 0    | 3676 | 1563 | 1810 | 3676 | 0    | 1810 | 258  |      | 0-57000 |      | 0    |
| Grp Volume(v), veh/h          | 0    | 1472 | 190  | 198  | 1128 | 0    | 258  | 35.3 |      | 0       | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln      | 0    | 1791 | 1563 | 1810 | 1791 | 0    | 1810 | D    |      | 0       | 1900 | 0    |
| Q Serve(g_s), s               | 0.0  | 26.4 | 5.2  | 8.5  | 10.3 | 0.0  | 11.0 |      |      | 0.0     | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s         | 0.0  | 26.4 | 5.2  | 8.5  | 10.3 | 0.0  | 11.0 |      |      | 0.0     | 0.0  | 0.0  |
| Prop In Lane                  | 0.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      |      | 0.00    |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 0    | 1900 | 829  | 256  | 2585 | 0    | 324  |      |      | 0       | 2    | 0    |
| V/C Ratio(X)                  | 0.00 | 0.77 | 0.23 | 0.77 | 0.44 | 0.00 | 0.80 |      |      | 0.00    | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h         | 0    | 2002 | 874  | 270  | 2714 | 0    | 584  |      |      | 0       | 460  | 0    |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |      | 1.00    | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |      |      | 0.00    | 0.00 | 0.00 |
| Uniform Delay (d), s/veh      | 0.0  | 15.1 | 10.1 | 33.3 | 4.6  | 0.0  | 31.6 |      |      | 0.0     | 0.0  | 0.0  |
| Incr Delay (d2), s/veh        | 0.0  | 2.3  | 0.3  | 12.0 | 0.2  | 0.0  | 3.6  |      |      | 0.0     | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |      |      | 0.0     | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 0.0  | 9.8  | 1.7  | 4.4  | 2.7  | 0.0  | 5.0  |      |      | 0.0     | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |         |      |      |
| LnGrp Delay(d), s/veh         | 0.0  | 17.3 | 10.4 | 45.3 | 4.8  | 0.0  | 35.3 |      |      | 0.0     | 0.0  | 0.0  |
| LnGrp LOS                     |      | B    | B    | D    | A    |      | D    |      |      |         |      |      |
| Approach Vol, veh/h           |      | 1662 |      |      | 1326 |      |      |      |      |         | 0    |      |
| Approach Delay, s/veh         |      | 16.6 |      |      | 10.9 |      |      |      |      |         | 0.0  |      |
| Approach LOS                  |      | B    |      |      | B    |      |      |      |      |         |      |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4    |      | 6    |      |      |      |         |      |      |
| Phs Duration (G+Y+Rc), s      | 5.4  | 46.7 | 18.4 | 0.0  |      | 62.1 |      |      |      |         |      |      |
| Change Period (Y+Rc), s       | 5.0  | 5.0  | 5.0  | 4.5  |      | 5.0  |      |      |      |         |      |      |
| Max Green Setting (Gmax), s   | 44.0 | 44.0 | 25.0 | 18.0 |      | 60.0 |      |      |      |         |      |      |
| Max Q Clear Time (g_c+110), s | 28.4 | 28.4 | 13.0 | 0.0  |      | 12.3 |      |      |      |         |      |      |
| Green Ext Time (p_c), s       | 0.0  | 13.3 | 0.5  | 0.0  |      | 21.3 |      |      |      |         |      |      |

## Intersection Summary

|                           |      |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 15.7 |
| HCM 6th LOS               | B    |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.6  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   |      |      |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 1446 | 66   | 0    | 1112 | 79   | 0    | 0    | 120  | 0    | 0    | 103  |
| Future Vol, veh/h        | 0    | 1446 | 66   | 0    | 1112 | 79   | 0    | 0    | 120  | 0    | 0    | 103  |
| Conflicting Peds, #/hr   | 4    | 0    | 4    | 4    | 0    | 4    | 1    | 0    | 2    | 2    | 0    | 1    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | 0    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 1    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 0    | 1572 | 72   | 0    | 1209 | 86   | 0    | 0    | 130  | 0    | 0    | 112  |

| Major/Minor          | Major1 |   | Major2 |   | Minor1 |   | Minor2 |       |
|----------------------|--------|---|--------|---|--------|---|--------|-------|
| Conflicting Flow All | -      | 0 | 0      | - | -      | 0 | -      | - 828 |
| Stage 1              | -      | - | -      | - | -      | - | -      | -     |
| Stage 2              | -      | - | -      | - | -      | - | -      | -     |
| Critical Hdwy        | -      | - | -      | - | -      | - | -      | 6.9   |
| Critical Hdwy Stg 1  | -      | - | -      | - | -      | - | -      | -     |
| Critical Hdwy Stg 2  | -      | - | -      | - | -      | - | -      | -     |
| Follow-up Hdwy       | -      | - | -      | - | -      | - | -      | 3.3   |
| Pot Cap-1 Maneuver   | 0      | - | -      | 0 | -      | - | 0      | 0 318 |
| Stage 1              | 0      | - | -      | 0 | -      | - | 0      | 0     |
| Stage 2              | 0      | - | -      | 0 | -      | - | 0      | 0     |
| Platoon blocked, %   | -      | - | -      | - | -      | - | -      | -     |
| Mov Cap-1 Maneuver   | -      | - | -      | - | -      | - | -      | 316   |
| Mov Cap-2 Maneuver   | -      | - | -      | - | -      | - | -      | -     |
| Stage 1              | -      | - | -      | - | -      | - | -      | -     |
| Stage 2              | -      | - | -      | - | -      | - | -      | -     |

| Approach               | EB | WB | NB   | SB   |
|------------------------|----|----|------|------|
| HCM Control Delay, s/v | 0  | 0  | 24.2 | 16.9 |
| HCM LOS                |    |    | C    | C    |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-----|-------|
| Capacity (veh/h)          | 316   | -   | -   | -   | -   | 413   |
| HCM Lane V/C Ratio        | 0.413 | -   | -   | -   | -   | 0.271 |
| HCM Control Delay (s/veh) | 24.2  | -   | -   | -   | -   | 16.9  |
| HCM Lane LOS              | C     | -   | -   | -   | -   | C     |
| HCM 95th %tile Q (veh)    | 1.9   | -   | -   | -   | -   | 1.1   |

# HCM 6th Signalized Intersection Summary 7: Purcell Blvd & US 20

Future PM Peak AWD  
12/23/2024

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 297                                                                               | 1153                                                                              | 116                                                                               | 186                                                                               | 950                                                                               | 87                                                                                | 94                                                                                  | 207                                                                                 | 120                                                                                 | 112                                                                                 | 207                                                                                 | 147                                                                                 |
| Future Volume (veh/h)        | 297                                                                               | 1153                                                                              | 116                                                                               | 186                                                                               | 950                                                                               | 87                                                                                | 94                                                                                  | 207                                                                                 | 120                                                                                 | 112                                                                                 | 207                                                                                 | 147                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| 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       | 1900                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1885                                                                              | 1870                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 316                                                                               | 1227                                                                              | 118                                                                               | 198                                                                               | 1011                                                                              | 89                                                                                | 100                                                                                 | 220                                                                                 | 62                                                                                  | 119                                                                                 | 220                                                                                 | 111                                                                                 |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 349                                                                               | 1780                                                                              | 171                                                                               | 232                                                                               | 1584                                                                              | 139                                                                               | 133                                                                                 | 265                                                                                 | 426                                                                                 | 152                                                                                 | 285                                                                                 | 560                                                                                 |
| Arrive On Green              | 0.19                                                                              | 0.54                                                                              | 0.53                                                                              | 0.13                                                                              | 0.48                                                                              | 0.47                                                                              | 0.07                                                                                | 0.14                                                                                | 0.14                                                                                | 0.08                                                                                | 0.15                                                                                | 0.15                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3292                                                                              | 316                                                                               | 1795                                                                              | 3320                                                                              | 292                                                                               | 1810                                                                                | 1900                                                                                | 1561                                                                                | 1810                                                                                | 1900                                                                                | 1594                                                                                |
| Grp Volume(v), veh/h         | 316                                                                               | 666                                                                               | 679                                                                               | 198                                                                               | 545                                                                               | 555                                                                               | 100                                                                                 | 220                                                                                 | 62                                                                                  | 119                                                                                 | 220                                                                                 | 111                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                              | 1817                                                                              | 1795                                                                              | 1791                                                                              | 1821                                                                              | 1810                                                                                | 1900                                                                                | 1561                                                                                | 1810                                                                                | 1900                                                                                | 1594                                                                                |
| Q Serve(g_s), s              | 25.6                                                                              | 40.8                                                                              | 41.2                                                                              | 16.2                                                                              | 34.3                                                                              | 34.4                                                                              | 8.1                                                                                 | 16.9                                                                                | 4.5                                                                                 | 9.7                                                                                 | 16.7                                                                                | 7.3                                                                                 |
| Cycle Q Clear(g_c), s        | 25.6                                                                              | 40.8                                                                              | 41.2                                                                              | 16.2                                                                              | 34.3                                                                              | 34.4                                                                              | 8.1                                                                                 | 16.9                                                                                | 4.5                                                                                 | 9.7                                                                                 | 16.7                                                                                | 7.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 349                                                                               | 969                                                                               | 983                                                                               | 232                                                                               | 854                                                                               | 869                                                                               | 133                                                                                 | 265                                                                                 | 426                                                                                 | 152                                                                                 | 285                                                                                 | 560                                                                                 |
| V/C Ratio(X)                 | 0.90                                                                              | 0.69                                                                              | 0.69                                                                              | 0.85                                                                              | 0.64                                                                              | 0.64                                                                              | 0.75                                                                                | 0.83                                                                                | 0.15                                                                                | 0.78                                                                                | 0.77                                                                                | 0.20                                                                                |
| Avail Cap(c_a), veh/h        | 374                                                                               | 969                                                                               | 983                                                                               | 263                                                                               | 854                                                                               | 869                                                                               | 157                                                                                 | 317                                                                                 | 468                                                                                 | 157                                                                                 | 317                                                                                 | 587                                                                                 |
| 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     | 59.2                                                                              | 25.2                                                                              | 25.3                                                                              | 63.9                                                                              | 29.5                                                                              | 29.6                                                                              | 68.1                                                                                | 62.8                                                                                | 41.8                                                                                | 67.4                                                                                | 61.3                                                                                | 34.1                                                                                |
| Incr Delay (d2), s/veh       | 23.4                                                                              | 4.0                                                                               | 4.0                                                                               | 20.2                                                                              | 3.6                                                                               | 3.6                                                                               | 14.2                                                                                | 13.8                                                                                | 0.1                                                                                 | 20.9                                                                                | 9.6                                                                                 | 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     | 14.0                                                                              | 18.0                                                                              | 18.5                                                                              | 8.7                                                                               | 15.5                                                                              | 15.8                                                                              | 4.3                                                                                 | 9.2                                                                                 | 1.8                                                                                 | 5.3                                                                                 | 8.8                                                                                 | 2.9                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 82.6                                                                              | 29.2                                                                              | 29.3                                                                              | 84.1                                                                              | 33.1                                                                              | 33.2                                                                              | 82.4                                                                                | 76.7                                                                                | 41.9                                                                                | 88.3                                                                                | 70.9                                                                                | 34.2                                                                                |
| LnGrp LOS                    | F                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   | E                                                                                   | D                                                                                   | F                                                                                   | E                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 1661                                                                              |                                                                                   | 1298                                                                              |                                                                                   |                                                                                   |                                                                                   | 382                                                                                 |                                                                                     | 450                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 39.4                                                                              |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                   |                                                                                   | 72.5                                                                                |                                                                                     | 66.4                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 23.4                                                                              | 85.1                                                                              | 16.6                                                                              | 24.9                                                                              | 32.9                                                                              | 75.6                                                                              | 15.0                                                                                | 26.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 21.0                                                                              | 73.0                                                                              | 12.0                                                                              | 24.0                                                                              | 30.0                                                                              | 64.0                                                                              | 12.0                                                                                | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 18.2                                                                              | 43.2                                                                              | 11.7                                                                              | 18.9                                                                              | 27.6                                                                              | 36.4                                                                              | 10.1                                                                                | 18.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                               | 19.8                                                                              | 0.0                                                                               | 0.5                                                                               | 0.3                                                                               | 15.0                                                                              | 0.1                                                                                 | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                   | 46.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.9  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   | ↑    | ↑    | ↑↑   | ↑    | ↑    |
| Traffic Vol, veh/h       | 1341 | 44   | 87   | 1190 | 33   | 79   |
| Future Vol, veh/h        | 1341 | 44   | 87   | 1190 | 33   | 79   |
| Conflicting Peds, #/hr   | 0    | 5    | 5    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 100  | 100  | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 1    | 0    | 0    | 1    | 0    | 1    |
| Mvmt Flow                | 1412 | 46   | 92   | 1253 | 35   | 83   |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |      |
|----------------------|--------|--------|--------|---|------|------|
| Conflicting Flow All | 0      | 0      | 1463   | 0 | 2228 | 711  |
| Stage 1              | -      | -      | -      | - | 1417 | -    |
| Stage 2              | -      | -      | -      | - | 811  | -    |
| Critical Hdwy        | -      | -      | 4.1    | - | 6.8  | 6.92 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.8  | -    |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.8  | -    |
| Follow-up Hdwy       | -      | -      | 2.2    | - | 3.5  | 3.31 |
| Pot Cap-1 Maneuver   | -      | -      | 468    | - | 37   | 378  |
| Stage 1              | -      | -      | -      | - | 193  | -    |
| Stage 2              | -      | -      | -      | - | 403  | -    |
| Platoon blocked, %   | -      | -      | -      | - | -    | -    |
| Mov Cap-1 Maneuver   | -      | -      | 466    | - | ~ 30 | 376  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 123  | -    |
| Stage 1              | -      | -      | -      | - | 192  | -    |
| Stage 2              | -      | -      | -      | - | 324  | -    |

| Approach               | EB | WB | NB |
|------------------------|----|----|----|
| HCM Control Delay, s/v | 0  | 1  | 35 |
| HCM LOS                |    |    | E  |

| Minor Lane/Major Mvmt     | NBLn1 | EBT | EBR | WBL   | WBT |
|---------------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)          | 234   | -   | -   | 466   | -   |
| HCM Lane V/C Ratio        | 0.504 | -   | -   | 0.197 | -   |
| HCM Control Delay (s/veh) | 35    | -   | -   | 14.6  | -   |
| HCM Lane LOS              | E     | -   | -   | B     | -   |
| HCM 95th %tile Q (veh)    | 2.6   | -   | -   | 0.7   | -   |

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

# HCM 6th Signalized Intersection Summary

## 9: SE 27th St/NE 27th St & US 20

Future PM Peak AWD  
12/23/2024

|                              |  |                                                                                    |  |  |                                                                                    |  |   |                                                                                      |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |                                                                                   |  |   |                                                                                     |  |   |  |
| Traffic Volume (veh/h)       | 376                                                                               | 566                                                                                                                                                                 | 302                                                                               | 198                                                                               | 430                                                                                                                                                                 | 58                                                                                | 372                                                                                 | 583                                                                                                                                                                     | 198                                                                                 | 161                                                                                 | 1079                                                                                                                                                                    | 326                                                                                 |
| Future Volume (veh/h)        | 376                                                                               | 566                                                                                                                                                                 | 302                                                                               | 198                                                                               | 430                                                                                                                                                                 | 58                                                                                | 372                                                                                 | 583                                                                                                                                                                     | 198                                                                                 | 161                                                                                 | 1079                                                                                                                                                                    | 326                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 0.97                                                                              | 1.00                                                                                |                                                                                                                                                                         | 0.98                                                                                | 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       | 1900                                                                              | 1885                                                                                                                                                                | 1885                                                                              | 1885                                                                              | 1870                                                                                                                                                                | 1870                                                                              | 1900                                                                                | 1885                                                                                                                                                                    | 1885                                                                                | 1870                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 388                                                                               | 584                                                                                                                                                                 | 0                                                                                 | 204                                                                               | 443                                                                                                                                                                 | 53                                                                                | 384                                                                                 | 601                                                                                                                                                                     | 181                                                                                 | 166                                                                                 | 1112                                                                                                                                                                    | 0                                                                                   |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                                                                                                                | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                                                                                                | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                                                                                                    | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                                                                                                    | 0.97                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 1                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 0                                                                                   | 1                                                                                                                                                                       | 1                                                                                   | 2                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Cap, veh/h                   | 362                                                                               | 825                                                                                                                                                                 |                                                                                   | 237                                                                               | 517                                                                                                                                                                 | 62                                                                                | 350                                                                                 | 1129                                                                                                                                                                    | 339                                                                                 | 201                                                                                 | 1219                                                                                                                                                                    |                                                                                     |
| Arrive On Green              | 0.33                                                                              | 0.38                                                                                                                                                                | 0.00                                                                              | 0.13                                                                              | 0.16                                                                                                                                                                | 0.16                                                                              | 0.19                                                                                | 0.42                                                                                                                                                                    | 0.41                                                                                | 0.11                                                                                | 0.34                                                                                                                                                                    | 0.00                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3582                                                                                                                                                                | 1598                                                                              | 1795                                                                              | 3186                                                                                                                                                                | 379                                                                               | 1810                                                                                | 2699                                                                                                                                                                    | 811                                                                                 | 1781                                                                                | 3610                                                                                                                                                                    | 1610                                                                                |
| Grp Volume(v), veh/h         | 388                                                                               | 584                                                                                                                                                                 | 0                                                                                 | 204                                                                               | 246                                                                                                                                                                 | 250                                                                               | 384                                                                                 | 398                                                                                                                                                                     | 384                                                                                 | 166                                                                                 | 1112                                                                                                                                                                    | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1791                                                                                                                                                                | 1598                                                                              | 1795                                                                              | 1777                                                                                                                                                                | 1788                                                                              | 1810                                                                                | 1791                                                                                                                                                                    | 1719                                                                                | 1781                                                                                | 1805                                                                                                                                                                    | 1610                                                                                |
| Q Serve(g_s), s              | 30.0                                                                              | 20.7                                                                                                                                                                | 0.0                                                                               | 16.7                                                                              | 20.2                                                                                                                                                                | 20.4                                                                              | 29.0                                                                                | 25.0                                                                                                                                                                    | 25.1                                                                                | 13.7                                                                                | 44.2                                                                                                                                                                    | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 30.0                                                                              | 20.7                                                                                                                                                                | 0.0                                                                               | 16.7                                                                              | 20.2                                                                                                                                                                | 20.4                                                                              | 29.0                                                                                | 25.0                                                                                                                                                                    | 25.1                                                                                | 13.7                                                                                | 44.2                                                                                                                                                                    | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 0.21                                                                              | 1.00                                                                                |                                                                                                                                                                         | 0.47                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 362                                                                               | 825                                                                                                                                                                 |                                                                                   | 237                                                                               | 288                                                                                                                                                                 | 290                                                                               | 350                                                                                 | 749                                                                                                                                                                     | 719                                                                                 | 201                                                                                 | 1219                                                                                                                                                                    |                                                                                     |
| V/C Ratio(X)                 | 1.07                                                                              | 0.71                                                                                                                                                                |                                                                                   | 0.86                                                                              | 0.85                                                                                                                                                                | 0.86                                                                              | 1.10                                                                                | 0.53                                                                                                                                                                    | 0.53                                                                                | 0.83                                                                                | 0.91                                                                                                                                                                    |                                                                                     |
| Avail Cap(c_a), veh/h        | 362                                                                               | 836                                                                                                                                                                 |                                                                                   | 251                                                                               | 308                                                                                                                                                                 | 310                                                                               | 350                                                                                 | 749                                                                                                                                                                     | 719                                                                                 | 249                                                                                 | 1219                                                                                                                                                                    |                                                                                     |
| HCM Platoon Ratio            | 1.67                                                                              | 1.67                                                                                                                                                                | 1.67                                                                              | 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                                                                                                                                                                | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 50.0                                                                              | 41.9                                                                                                                                                                | 0.0                                                                               | 63.8                                                                              | 61.1                                                                                                                                                                | 61.3                                                                              | 60.5                                                                                | 32.6                                                                                                                                                                    | 32.9                                                                                | 65.1                                                                                | 47.5                                                                                                                                                                    | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 67.8                                                                              | 3.6                                                                                                                                                                 | 0.0                                                                               | 23.4                                                                              | 18.6                                                                                                                                                                | 19.8                                                                              | 77.0                                                                                | 2.7                                                                                                                                                                     | 2.8                                                                                 | 15.7                                                                                | 11.8                                                                                                                                                                    | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 19.1                                                                              | 8.6                                                                                                                                                                 | 0.0                                                                               | 9.2                                                                               | 10.6                                                                                                                                                                | 10.9                                                                              | 20.7                                                                                | 11.4                                                                                                                                                                    | 11.0                                                                                | 7.1                                                                                 | 21.7                                                                                                                                                                    | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| LnGrp Delay(d), s/veh        | 117.8                                                                             | 45.5                                                                                                                                                                | 0.0                                                                               | 87.2                                                                              | 79.7                                                                                                                                                                | 81.1                                                                              | 137.5                                                                               | 35.3                                                                                                                                                                    | 35.7                                                                                | 80.8                                                                                | 59.3                                                                                                                                                                    | 0.0                                                                                 |
| LnGrp LOS                    | F                                                                                 | D                                                                                                                                                                   |                                                                                   | F                                                                                 | E                                                                                                                                                                   | F                                                                                 | F                                                                                   | D                                                                                                                                                                       | D                                                                                   | F                                                                                   | E                                                                                                                                                                       |                                                                                     |
| Approach Vol, veh/h          |                                                                                   | 972                                                                                                                                                                 |                                                                                   |                                                                                   | 700                                                                                                                                                                 |                                                                                   |                                                                                     | 1166                                                                                                                                                                    |                                                                                     |                                                                                     | 1278                                                                                                                                                                    |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 74.4                                                                                                                                                                |                                                                                   |                                                                                   | 82.4                                                                                                                                                                |                                                                                   |                                                                                     | 69.1                                                                                                                                                                    |                                                                                     |                                                                                     | 62.1                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | E                                                                                                                                                                   |                                                                                   |                                                                                   | F                                                                                                                                                                   |                                                                                   |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     | E                                                                                                                                                                       |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 23.8                                                                              | 38.6                                                                                                                                                                | 33.0                                                                              | 54.7                                                                              | 34.0                                                                                                                                                                | 28.3                                                                              | 20.9                                                                                | 66.8                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 20.0                                                                              | 34.0                                                                                                                                                                | 28.0                                                                              | 48.0                                                                              | 29.0                                                                                                                                                                | 25.0                                                                              | 20.0                                                                                | 56.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 18.7                                                                              | 22.7                                                                                                                                                                | 31.0                                                                              | 46.2                                                                              | 32.0                                                                                                                                                                | 22.4                                                                              | 15.7                                                                                | 27.1                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 4.7                                                                                                                                                                 | 0.0                                                                               | 1.1                                                                               | 0.0                                                                                                                                                                 | 0.6                                                                               | 0.2                                                                                 | 3.9                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 6th Ctrl Delay, s/veh    |                                                                                   |                                                                                                                                                                     | 70.4                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 6th LOS                  |                                                                                   |                                                                                                                                                                     | E                                                                                 |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

### Notes

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

| 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       | 74   | 756  | 95   | 29   | 566  | 25   | 29   | 4    | 83   | 25   | 4    | 87   |
| Future Vol, veh/h        | 74   | 756  | 95   | 29   | 566  | 25   | 29   | 4    | 83   | 25   | 4    | 87   |
| Conflicting Peds, #/hr   | 1    | 0    | 12   | 12   | 0    | 1    | 1    | 0    | 1    | 1    | 0    | 1    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | 50   | -    | -    | 75   | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   |
| Heavy Vehicles, %        | 0    | 1    | 0    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 79   | 804  | 101  | 31   | 602  | 27   | 31   | 4    | 88   | 27   | 4    | 93   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 630    | 0 | 0 | 917    | 0 | 0 | 1391   | 1717 | 466 | 1242   | 1754 | 317 |
| Stage 1              | -      | - | - | -      | - | - | 1025   | 1025 | -   | 679    | 679  | -   |
| Stage 2              | -      | - | - | -      | - | - | 366    | 692  | -   | 563    | 1075 | -   |
| Critical Hdwy        | 4.1    | - | - | 4.1    | - | - | 7.5    | 6.5  | 6.9 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.2    | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 962    | - | - | 752    | - | - | 103    | 91   | 549 | 133    | 86   | 685 |
| Stage 1              | -      | - | - | -      | - | - | 255    | 315  | -   | 412    | 454  | -   |
| Stage 2              | -      | - | - | -      | - | - | 631    | 448  | -   | 483    | 298  | -   |
| Platoon blocked, %   |        | - | - |        | - | - |        |      |     |        |      |     |
| Mov Cap-1 Maneuver   | 961    | - | - | 743    | - | - | 76     | 79   | 542 | 97     | 75   | 684 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 76     | 79   | -   | 97     | 75   | -   |
| Stage 1              | -      | - | - | -      | - | - | 231    | 286  | -   | 378    | 434  | -   |
| Stage 2              | -      | - | - | -      | - | - | 517    | 429  | -   | 365    | 271  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB   |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s/v | 0.7 |  |  | 0.5 |  |  | 49.3 |  |  | 29.9 |  |  |
| HCM LOS                |     |  |  |     |  |  | E    |  |  | D    |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 198   | 961   | -   | -   | 743   | -   | -   | 265   |
| HCM Lane V/C Ratio        | 0.623 | 0.082 | -   | -   | 0.042 | -   | -   | 0.466 |
| HCM Control Delay (s/veh) | 49.3  | 9.1   | -   | -   | 10.1  | -   | -   | 29.9  |
| HCM Lane LOS              | E     | A     | -   | -   | B     | -   | -   | D     |
| HCM 95th %tile Q (veh)    | 3.6   | 0.3   | -   | -   | 0.1   | -   | -   | 2.3   |

## LANE SUMMARY

 Site: 101 [US 20 & Hamby - Future NB (Step4) (Site Folder: US20 No Build)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Roundabout

| Lane Use and Performance |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
|--------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-------------------|----------|-------------|-------------|-----------|--------------|
|                          | Demand Flows  |      | Arrival Flows |      | Cap.  | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 95% Back Of Queue |          | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
|                          | [ Total veh/h | HV % | [ Total veh/h | HV % | veh/h | v/c       | %          | sec         |                  | [ Veh             | Dist ] m |             | m           | %         | %            |
| South: Ward Road         |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 476           | 1.0  | 476           | 1.0  | 667   | 0.713     | 100        | 21.6        | LOS C            | 6.6               | 46.4     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 476           | 1.0  | 476           | 1.0  |       | 0.713     |            | 21.6        | LOS C            | 6.6               | 46.4     |             |             |           |              |
| East: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 625           | 3.6  | 625           | 3.6  | 843   | 0.742     | 100        | 19.4        | LOS C            | 10.3              | 74.5     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 625           | 3.6  | 625           | 3.6  |       | 0.742     |            | 19.4        | LOS C            | 10.3              | 74.5     |             |             |           |              |
| North: Hamby Road        |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 457           | 1.7  | 457           | 1.7  | 688   | 0.663     | 100        | 18.4        | LOS C            | 5.7               | 40.5     | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 457           | 1.7  | 457           | 1.7  |       | 0.663     |            | 18.4        | LOS C            | 5.7               | 40.5     |             |             |           |              |
| West: US 20              |               |      |               |      |       |           |            |             |                  |                   |          |             |             |           |              |
| Lane 1 <sup>d</sup>      | 718           | 2.0  | 718           | 2.0  | 779   | 0.922     | 100        | 44.2        | LOS E            | 23.4              | 166.7    | Full        | 500         | 0.0       | 0.0          |
| Approach                 | 718           | 2.0  | 718           | 2.0  |       | 0.922     |            | 44.2        | LOS E            | 23.4              | 166.7    |             |             |           |              |
| All Vehicles             | 2276          | 2.2  | 2276          | 2.2  |       | 0.922     |            | 27.5        | LOS D            | 23.4              | 166.7    |             |             |           |              |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>d</sup> Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) |     |     |     |       |     |            |           |            |          |     |              |
|-----------------------------|-----|-----|-----|-------|-----|------------|-----------|------------|----------|-----|--------------|
| South: Ward Road            |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From S To Exit:             | W   | N   | E   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 86  | 242 | 148 | 476   | 1.0 | 667        | 0.713     | 100        | NA       | NA  |              |
| Approach                    | 86  | 242 | 148 | 476   | 1.0 |            | 0.713     |            |          |     |              |
| East: US 20                 |     |     |     |       |     |            |           |            |          |     |              |
| Mov.                        | L2  | T1  | R2  | Total | %HV |            | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From E To Exit:             | S   | W   | N   |       |     | Cap. veh/h | v/c       | %          | %        |     |              |
| Lane 1                      | 179 | 391 | 54  | 625   | 3.6 | 843        | 0.742     | 100        | NA       | NA  |              |

|                          |      |     |     |       |     |       |       |       |       |     |      |
|--------------------------|------|-----|-----|-------|-----|-------|-------|-------|-------|-----|------|
| Approach                 | 179  | 391 | 54  | 625   | 3.6 |       | 0.742 |       |       |     |      |
| North: Hamby Road        |      |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2   | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From N                   |      |     |     |       |     |       | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | E    | S   | W   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          |      |     |     |       |     | veh/h |       |       |       |     |      |
| Lane 1                   | 80   | 278 | 98  | 457   | 1.7 | 688   | 0.663 | 100   | NA    | NA  |      |
| Approach                 | 80   | 278 | 98  | 457   | 1.7 |       | 0.663 |       |       |     |      |
| West: US 20              |      |     |     |       |     |       |       |       |       |     |      |
| Mov.                     | L2   | T1  | R2  | Total | %HV |       | Deg.  | Lane  | Prob. | Ov. |      |
| From W                   |      |     |     |       |     |       | Satn  | Util. | SL    | Ov. | Lane |
| To Exit:                 | N    | E   | S   |       |     | Cap.  | v/c   | %     | %     | No. |      |
|                          |      |     |     |       |     | veh/h |       |       |       |     |      |
| Lane 1                   | 122  | 485 | 112 | 718   | 2.0 | 779   | 0.922 | 100   | NA    | NA  |      |
| Approach                 | 122  | 485 | 112 | 718   | 2.0 |       | 0.922 |       |       |     |      |
| Total %HV Deg.Satn (v/c) |      |     |     |       |     |       |       |       |       |     |      |
| All Vehicles             | 2276 | 2.2 |     | 0.922 |     |       |       |       |       |     |      |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

| Merge Analysis                                                 |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |
|----------------------------------------------------------------|------------------|---------------------|------------------------|-----------------|--------------------------|------------------|-----------------------|---------------------|---------------|----------------|-----------------|--|
|                                                                | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |  |
| There are no Exit Short Lanes for Merge Analysis at this Site. |                  |                     |                        |                 |                          |                  |                       |                     |               |                |                 |  |

| Variable Demand Analysis |                           |                            |                                       |                          |
|--------------------------|---------------------------|----------------------------|---------------------------------------|--------------------------|
|                          | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
| South: Ward Road         |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| East: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| North: Hamby Road        |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |
| West: US 20              |                           |                            |                                       |                          |
| Lane 1                   | 0.0                       | 0.0                        | 0.0                                   | 0.0                      |

| Intersection             |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                     |      |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 3    |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                     |      |
| Movement                 | EBL  | EBT                                                                               | EBR                                                                               | WBL  | WBT                                                                               | WBR                                                                               | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                                 | SBR  |
| Lane Configurations      |      |  |  |      |  |  |      |  |      |      |  |      |
| Traffic Vol, veh/h       | 33   | 603                                                                               | 4                                                                                 | 12   | 521                                                                               | 33                                                                                | 25   | 4                                                                                 | 13   | 17   | 12                                                                                  | 29   |
| Future Vol, veh/h        | 33   | 603                                                                               | 4                                                                                 | 12   | 521                                                                               | 33                                                                                | 25   | 4                                                                                 | 13   | 17   | 12                                                                                  | 29   |
| 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           | -    | -                                                                                 | 68                                                                                | -    | -                                                                                 | 93                                                                                | -    | -                                                                                 | -    | -    | -                                                                                   | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Grade, %                 | -    | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 | -    | 0                                                                                 | -    | -    | 0                                                                                   | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   | 92   | 92                                                                                  | 92   |
| Heavy Vehicles, %        | 0    | 2                                                                                 | 0                                                                                 | 12   | 3                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                   | 0    |
| Mvmt Flow                | 36   | 655                                                                               | 4                                                                                 | 13   | 566                                                                               | 36                                                                                | 27   | 4                                                                                 | 14   | 18   | 13                                                                                  | 32   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|-----|
| Conflicting Flow All | 602    | 0 | 0 | 659    | 0 | 0 | 1360   | 1355 | 655 | 1330   | 1323 | 566 |
| Stage 1              | -      | - | - | -      | - | - | 727    | 727  | -   | 592    | 592  | -   |
| Stage 2              | -      | - | - | -      | - | - | 633    | 628  | -   | 738    | 731  | -   |
| Critical Hdwy        | 4.1    | - | - | 4.22   | - | - | 7.1    | 6.5  | 6.2 | 7.1    | 6.5  | 6.2 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.1    | 5.5  | -   | 6.1    | 5.5  | -   |
| Follow-up Hdwy       | 2.2    | - | - | 2.308  | - | - | 3.5    | 4    | 3.3 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 985    | - | - | 883    | - | - | 127    | 151  | 470 | 133    | 158  | 528 |
| Stage 1              | -      | - | - | -      | - | - | 419    | 432  | -   | 496    | 497  | -   |
| Stage 2              | -      | - | - | -      | - | - | 471    | 479  | -   | 413    | 430  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -   |
| Mov Cap-1 Maneuver   | 985    | - | - | 883    | - | - | 105    | 139  | 470 | 118    | 146  | 528 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 105    | 139  | -   | 118    | 146  | -   |
| Stage 1              | -      | - | - | -      | - | - | 395    | 407  | -   | 467    | 486  | -   |
| Stage 2              | -      | - | - | -      | - | - | 422    | 468  | -   | 373    | 405  | -   |

| Approach               | EB  |  |  | WB  |  |  | NB   |  |  | SB |  |  |
|------------------------|-----|--|--|-----|--|--|------|--|--|----|--|--|
| HCM Control Delay, s/v | 0.5 |  |  | 0.2 |  |  | 41.6 |  |  | 30 |  |  |
| HCM LOS                |     |  |  |     |  |  | E    |  |  | D  |  |  |

| Minor Lane/Major Mvmt     | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|---------------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)          | 143   | 985   | -   | -   | 883   | -   | -   | 206   |
| HCM Lane V/C Ratio        | 0.319 | 0.036 | -   | -   | 0.015 | -   | -   | 0.306 |
| HCM Control Delay (s/veh) | 41.6  | 8.8   | 0   | -   | 9.1   | 0   | -   | 30    |
| HCM Lane LOS              | E     | A     | A   | -   | A     | A   | -   | D     |
| HCM 95th %tile Q (veh)    | 1.3   | 0.1   | -   | -   | 0     | -   | -   | 1.2   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 6.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 360                                                                               | 273                                                                               | 202                                                                               | 12                                                                                | 4                                                                                 | 364                                                                               |
| Future Vol, veh/h        | 360                                                                               | 273                                                                               | 202                                                                               | 12                                                                                | 4                                                                                 | 364                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | Free                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 220                                                                               | -                                                                                 | -                                                                                 | 140                                                                               | 0                                                                                 | 80                                                                                |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                | 91                                                                                |
| Heavy Vehicles, %        | 0                                                                                 | 3                                                                                 | 9                                                                                 | 11                                                                                | 25                                                                                | 1                                                                                 |
| Mvmt Flow                | 396                                                                               | 300                                                                               | 222                                                                               | 13                                                                                | 4                                                                                 | 400                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 222    | 0      | 0 1314 222    |
| Stage 1              | -      | -      | - 222 -       |
| Stage 2              | -      | -      | - 1092 -      |
| Critical Hdwy        | 4.1    | -      | - 6.65 6.21   |
| Critical Hdwy Stg 1  | -      | -      | - 5.65 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.65 -      |
| Follow-up Hdwy       | 2.2    | -      | - 3.725 3.309 |
| Pot Cap-1 Maneuver   | 1359   | -      | 0 156 820     |
| Stage 1              | -      | -      | 0 763 -       |
| Stage 2              | -      | -      | 0 291 -       |
| Platoon blocked, %   | -      | -      |               |
| Mov Cap-1 Maneuver   | 1359   | -      | - 111 820     |
| Mov Cap-2 Maneuver   | -      | -      | - 111 -       |
| Stage 1              | -      | -      | - 541 -       |
| Stage 2              | -      | -      | - 291 -       |

| Approach               | EB | WB | SB   |
|------------------------|----|----|------|
| HCM Control Delay, s/v | 5  | 0  | 13.8 |
| HCM LOS                |    |    | B    |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | SBLn1 | SBLn2 |
|---------------------------|-------|-----|-----|-------|-------|
| Capacity (veh/h)          | 1359  | -   | -   | 111   | 820   |
| HCM Lane V/C Ratio        | 0.291 | -   | -   | 0.04  | 0.488 |
| HCM Control Delay (s/veh) | 8.7   | -   | -   | 38.8  | 13.5  |
| HCM Lane LOS              | A     | -   | -   | E     | B     |
| HCM 95th %tile Q (veh)    | 1.2   | -   | -   | 0.1   | 2.7   |