

December 17, 2024

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12/17/2024

**SUBJECT:** 2023 Intersection Level of Service Analysis

This memorandum describes the methods, assumptions, and findings of the 2023 intersection Level of Service (LOS) analysis developed in support of the Transportation Element.

**LEVEL OF SERVICE BACKGROUND**

Level of Service Definition

Level of service (LOS) is a qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown flow with high delays.

Intersection LOS is defined by the average delay experienced by a vehicle traveling through an intersection. Delay at a signalized intersection can be caused by waiting for the signal or waiting for the queue ahead to clear the signal. Delay at roundabouts and stop-controlled intersections is caused by waiting for a gap in traffic or waiting for a queue to clear the intersection or roundabout.

Level of service for signalized, roundabout, and all-way stop control intersections is based on the average delay for all vehicles entering the intersection during the study period. LOS for minor-approach stop-controlled intersections is based on the control delay on the worst movement.

Intersection LOS thresholds are defined by the Transportation Research Board *Highway Capacity Manual*. Signalized and roundabout intersections utilize different LOS thresholds than stop-controlled intersections. Intersection LOS thresholds for all intersection types are shown in **Table 1**.

**Table 1. Level of Service Thresholds**

| LOS | Signal and Roundabout Delay (sec/veh) | Stop-Controlled Intersection Delay (sec/veh) |
|-----|---------------------------------------|--|
| A   | ≤10                                   | ≤10  |
| B   | >10 – 20                              | >10 – 15                                     |
| C   | >20 – 35                              | >15 – 25                                     |
| D   | >35 – 55                              | >25 – 35                                     |
| E   | >55 – 80                              | >35 – 50                                     |
| F   | >80                                   | >50  |

### Level of Service Policy

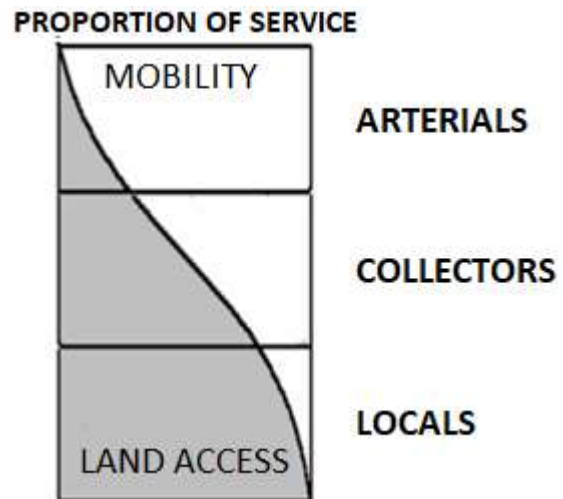
The Bremerton Comprehensive Plan established a minimum level-of-service (LOS) standard of LOS E for City intersections. Minimum LOS standards for State routes are established by the Washington State Department of Transportation (WSDOT). WSDOT designates SR 3, SR 304 (Burwell St), and SR 310 (Kitsap Way) as Highways of Statewide Significance (HSS), with a minimum LOS D standard. The WSDOT designates SR 303 (Warren Ave) as a non-HSS route with a minimum LOS E/Mitigated standard, meaning that congestion should be mitigated when peak hour LOS falls below LOS E.

## **FUNCTIONAL CLASSIFICATION**

### Functional Classification Definition

Functional classification is a method of classifying roadways according to the character of the service they are intended to provide. It provides a conceptual framework for identifying the role of individual streets in serving the two primary goals of a roadway network: access to/from specific locations, and travel mobility.

Functional classification generally indicates a roadway’s position on a spectrum between access and mobility, as shown in **Figure 1**. For example, arterials emphasize travel mobility at the expense of land access, while local streets provide land access with less emphasis on mobility.



**Figure 1. Functional Classification Service**

Source: *Functional Classification Comprehensive Guide* (Virginia DOT 2014)

### Bremerton Functional Classification System

Washington State cities and counties are required to adopt a street classification system that is consistent with state and federal guidelines. These requirements are codified in RCW 35.78.010 and RCW 47.26.090. Each local jurisdiction is responsible for defining its transportation system into freeway, principal arterial, minor arterial, and collector roadways. All other roadways are assumed to be local access streets. The Bremerton Transportation Element describes the City’s functional classification system, including the following:

- **Principal Arterials** serve regional through trips and connect Bremerton with the surrounding region. They prioritize the movement of vehicles and freight, often with limited direct access to abutting land uses. Principal arterials serve high traffic volumes, carrying the greatest portion of through or long-distance traffic within a city. These routes provide key access points to major regional and state highways adjacent to an urban area. Examples include Burwell Street and 11<sup>th</sup> Street.
- **Minor Arterials** connect centers and facilities within the community and serve some through traffic, while providing a greater level of access to abutting properties. Minor arterials connect with other arterial and collector roads extending into the urban area, and serve less concentrated traffic-generating areas, such as neighborhood shopping centers and schools. These streets also serve as boundaries to neighborhoods and collect traffic from collector

streets. Although the predominant function of minor arterial streets is the movement of through traffic, they also serve significant local traffic with origins or destinations at points along the corridor. Examples include Naval Avenue and 6<sup>th</sup> Street.

- **Major Collectors** connect two or more neighborhoods or commercial areas while providing a high degree of property access within a localized area. These roadways “collect” traffic from local neighborhoods and carry it to the arterial roadways. Additionally, major collectors provide direct access to services and residential areas, local parks, churches, and areas with similar land uses. Examples include High Avenue and Park Avenue.

## ANALYSIS METHODS AND ASSUMPTIONS

### Data Collection

Intersection turning movement count data were collected at 60 intersections in and near the City of Bremerton on non-holiday weekdays from 6-8 AM and 3-5 PM during the week of November 6, 2023 and November 13, 2023.

Data collection time periods were identified and validated through review of historical traffic counts and travel speed data. Intersection turning movement counts collected during the most recent citywide data collection effort in 2018 and 2019 indicated weekday morning demand generally peaking before 8:00 AM, with demand tapering between 8:00 and 9:00 AM. Similarly, historical PM peak period intersection turning movement counts indicated weekday afternoon travel demand generally peaking before 5:00 PM.

An analysis of historical travel time data on Naval Avenue and on Burwell Street was also used to confirm intersection turning movement count data collection periods. The travel time analysis utilized data obtained from the TomTom Move “big data” platform for all weekdays in 2023 during the 6:00 – 9:00 AM and 3:00 – 6:00 PM periods. TomTom Move utilizes anonymized real-world location data from smartphones, GPS units, and other location-enabled devices to provide travel analytics such as roadway speeds, travel times, and traffic density.

The analysis considered travel time and Planning Time Index (PTI), a reliability measure defined as the ratio of 95<sup>th</sup> percentile travel time to free-flow travel time. A PTI of 2.50 would indicate that, for trip that would take 10 minutes in light traffic, 25 minutes should be planned during periods of congestion. Higher PTI values indicate travel time unreliability, which is associated with driver frustration.

The travel time analysis indicated that travel time peaks from 6:00 to 7:00 AM on southbound Naval Avenue and from 3:00 to 4:00 PM on westbound Burwell Street. The 6:00 – 7:00 AM and 3:00 – 4:00 PM hours also indicated a greater variation in travel time, resulting in the highest PTI during the AM and PM analysis periods, respectively. Travel time analysis results are summarized in **Table 2**.

Intersection data collection sites were selected based on roadway functional classification, control type, and location. Sites included all signalized intersections and roundabouts within city limits, all intersections of principal arterial and minor arterial roadways, and other intersections which play a critical role in vehicle mobility and route choice in Bremerton, based on engineering judgment.

**Table 2. 2023 Weekday Travel Time Analysis**

| Period  | 2023 Weekday Travel Time by Percentile (m:ss) |                  |                  | Planning Time Index (PTI) |
|---|---|------------------|------------------|---------------------------|
|   | 15 <sup>th</sup>                              | 50 <sup>th</sup> | 85 <sup>th</sup> |                           |
| Southbound Naval Ave from 13 <sup>th</sup> St to 1 <sup>st</sup> St |   |                  |                  |                           |
| 6:00 – 7:00 AM  | 1:39  | 2:56             | 7:24             | 3.15                      |
| 7:00 – 8:00 AM  | 1:34  | 2:31             | 5:04             | 1.80                      |
| 8:00 – 9:00 AM  | 1:33  | 2:30             | 4:43             | 1.53                      |
| Westbound Burwell St from Park Ave to N Callow Ave                  |   |                  |                  |                           |
| 3:00 – 4:00 PM  | 2:10  | 2:56             | 7:00             | 2.99                      |
| 4:00 – 5:00 PM  | 2:07  | 2:47             | 6:26             | 2.89                      |
| 5:00 – 6:00 PM  | 2:03  | 2:36             | 5:16             | 2.28                      |

Prior transportation planning efforts in Bremerton relied primarily upon traffic count data collected between 2017 and 2019. Historic traffic count data was determined to be insufficient for this analysis for the following key reasons:

- **COVID-19 Pandemic:** Post-pandemic counts have indicated shifts in travel patterns between 2019 and 2023, due in part to the effect of increased remote work opportunities. These shifts vary by region and are difficult to quantify without updated traffic counts.
- **Naval Base Kitsap:** Some historic traffic counts were collected during the period from 2018 through 2019 when up to two US Navy Nimitz-class supercarriers, the USS Nimitz and the USS Carl Vinson or USS John C. Stennis, were stationed simultaneously at Naval Base Kitsap. Each Nimitz-class supercarrier supports a crew of between 5,000 and 6,500, which can significantly impact travel demand in and around Bremerton. The USS Carl Vinson relocated in 2020, leaving NBK-Bremerton home to one supercarrier at the time of this analysis.
- **New Development:** Bremerton has undergone significant new development since 2019, including major housing and commercial projects. The trip-generating impacts of these new developments were not captured by prior traffic counts.
- **Data Uniformity:** Historic traffic counts were collected during periods of varying pandemic activity, supercarrier status, and development buildout. Travel demand validation and forecasting is based upon the assumption that the forecasting model reflects a “snapshot in time” of travel patterns. The collection of 2023 traffic count data during a two-week period allows greater certainty in the resulting travel demand forecasts.

Roadway alignment, intersection control, and channelization were obtained from the Bremerton 2019 citywide intersection operations model and were verified using aerial photography and field review to reflect 2023 conditions. Traffic signal timing plans were obtained from City and WSDOT staff.

The AM and PM peak hour period for each study intersection is identified in **Table 3**.

**Table 3. 2023 Peak Hour Period by Intersection**

| ID  | Name  | AM Peak Hour | PM Peak Hour |
|---|---|--------------|--------------|
| <i>City of Bremerton Intersections</i>    |   |              |              |
| 13  | 6 <sup>th</sup> Street & N Montgomery Ave           | 6:15 – 7:15  | 3:30 – 4:30  |
| 14  | 6 <sup>th</sup> Street & Naval Ave                  | 6:15 – 7:15  | 3:30 – 4:30  |
| 16  | 6 <sup>th</sup> Street & Veneta Ave                 | 6:15 – 7:15  | 3:15 – 4:15  |
| 17  | 6 <sup>th</sup> Street & Warren Ave                 | 7:00 – 8:00  | 3:30 – 4:30  |
| 18  | 6 <sup>th</sup> Street & Park Ave                   | 6:30 – 7:30  | 3:15 – 4:15  |
| 19  | 6 <sup>th</sup> Street & Pacific Ave                | 7:00 – 8:00  | 3:15 – 4:15  |
| 20  | 6 <sup>th</sup> Street & Washington Ave             | 6:00 – 7:00  | 3:15 – 4:15  |
| 30  | 11 <sup>th</sup> Street & N Callow Ave              | 7:00 – 8:00  | 4:00 – 5:00  |
| 31  | 11 <sup>th</sup> Street & Naval Ave                 | 7:00 – 8:00  | 4:00 – 5:00  |
| 32  | 11 <sup>th</sup> Street & High Ave                  | 7:00 – 8:00  | 3:15 – 4:15  |
| 33  | 11 <sup>th</sup> Street & Park Ave                  | 7:00 – 8:00  | 3:15 – 4:15  |
| 34  | Washington Ave & Manette Bridge                     | 7:00 – 8:00  | 3:30 – 4:30  |
| 43  | Burwell St & Washington Ave                         | 6:15 – 7:15  | 3:15 – 4:15  |
| 46  | Werner Rd & Union Ave/Auto Center Blvd              | 7:00 – 8:00  | 3:45 – 4:45  |
| 47  | Werner/Loxie Eagans & Auto Center Blvd              | 7:00 – 8:00  | 3:15 – 4:15  |
| 60  | Perry Ave & Sheridan Rd                             | 7:00 – 8:00  | 3:30 – 4:30  |
| 67  | Perry Ave & 11 <sup>th</sup> Street                 | 7:00 – 8:00  | 3:15 – 4:15  |
| 70  | Wheaton Way & Lebo Blvd/ Cherry Ave                 | 7:00 – 8:00  | 3:30 – 4:30  |
| 74  | Manette Bridge/ Wheaton Way & Harkins St            | 7:00 – 8:00  | 3:30 – 4:30  |
| 85  | Lebo Blvd & Sheridan Rd                             | 7:00 – 8:00  | 3:45 – 4:45  |
| 88  | 11 <sup>th</sup> Street & Pacific Ave               | 7:00 – 8:00  | 3:30 – 4:30  |
| 137                                       | Wheaton Way & Broad St                              | 7:00 – 8:00  | 4:00 – 5:00  |
| 307                                       | Naval Ave & 15 <sup>th</sup> Street                 | 7:00 – 8:00  | 4:00 – 5:00  |
| <i>WSDOT Intersections in City Limits</i> |   |              |              |
| 2   | Kitsap Way (SR 310) & SR 3 SB Off-Ramp              | 7:00 – 8:00  | 3:30 – 4:30  |
| 3   | Kitsap Way (SR 310) & SR 3 NB Ramp                  | 7:00 – 8:00  | 3:45 – 4:45  |
| 4   | Kitsap Way (SR 310) & Shorewood Dr                  | 7:00 – 8:00  | 3:45 – 4:45  |
| 5   | Kitsap Way (SR 310) & Ostrich Bay Way               | 7:00 – 8:00  | 3:45 – 4:45  |
| 6   | Kitsap Way (SR 310) & Oyster Bay Ave                | 7:00 – 8:00  | 3:45 – 4:45  |
| 7   | Kitsap Way (SR 310) & National Ave                  | 7:00 – 8:00  | 4:00 – 5:00  |
| 8   | Kitsap Way (SR 310) & Marine Dr                     | 7:00 – 8:00  | 3:45 – 4:45  |
| 9   | Kitsap Way (SR 310) & Corbett Dr                    | 7:00 – 8:00  | 3:45 – 4:45  |
| 10  | Kitsap Way (SR 310) & 11 <sup>th</sup> St           | 7:00 – 8:00  | 3:45 – 4:45  |
| 11  | Kitsap Way (SR 310) & Wycoff Ave                    | 6:15 – 7:15  | 3:30 – 4:30  |
| 12  | Kitsap Way (SR 310)/6 <sup>th</sup> St & Callow Ave | 6:15 – 7:15  | 3:30 – 4:30  |
| 21  | Warren Ave (SR 310) & Burwell St (SR 304)           | 7:00 – 8:00  | 3:30 – 4:30  |

| ID   | Name  | AM Peak Hour | PM Peak Hour |
|--|---|--------------|--------------|
| 22   | Warren Ave (SR 303) & 11 <sup>th</sup> Street | 7:00 – 8:00  | 3:30 – 4:30  |
| 23   | Warren Ave (SR 303) & 13 <sup>th</sup> Street | 7:00 – 8:00  | 3:45 – 4:45  |
| 24   | Warren Ave (SR 303) & 16 <sup>th</sup> Street | 7:00 – 8:00  | 3:45 – 4:45  |
| 25   | Wheaton Way (SR 303) & Sheridan Rd            | 7:00 – 8:00  | 3:45 – 4:45  |
| 26   | Wheaton Way (SR 303) & Sylvan Way             | 7:00 – 8:00  | 4:00 – 5:00  |
| 27   | Wheaton Way (SR 303) & Hollis Street          | 7:00 – 8:00  | 4:00 – 5:00  |
| 28   | Wheaton Way (SR 303) & Riddell Rd             | 7:00 – 8:00  | 4:00 – 5:00  |
| 35   | Burwell St (SR 304) & N Callow Ave            | 7:00 – 8:00  | 3:30 – 4:30  |
| 36   | Burwell St (SR 304) & N Montgomery Ave        | 7:00 – 8:00  | 3:30 – 4:30  |
| 37   | Burwell St (SR 304) & Naval Ave               | 6:45 – 7:45  | 3:15 – 4:15  |
| 38   | Burwell St (SR 304) & State Ave               | 7:00 – 8:00  | 3:15 – 4:15  |
| 40   | Burwell St (SR 304) & Park Ave                | 6:15 – 7:15  | 3:30 – 4:30  |
| 42   | Burwell St (SR 304) & Pacific Ave             | 6:00 – 7:00  | 3:15 – 4:15  |
| 44   | Charleston Blvd (SR 304) & Farragut Ave       | 6:30 – 7:30  | 3:15 – 4:15  |
| 76   | SR 303 SB Ramp & Callahan Dr                  | 7:00 – 8:00  | 3:45 – 4:45  |
| 93   | SR 3 NB Ramps & Austin Dr                     | 7:00 – 8:00  | 3:15 – 4:15  |
| 94   | SR 3 SB Ramps & Austin Dr                     | 7:00 – 8:00  | 3:45 – 4:45  |
| 104  | Loxie Eagans Blvd & SR 3 SB Ramps             | 7:00 – 8:00  | 3:00 – 4:00  |
| 105  | Loxie Eagans Blvd & SR 3 NB ramps             | 7:00 – 8:00  | 3:15 – 4:15  |
| 216  | SR 3 & Imperial Way                           | 7:00 – 8:00  | 3:00 – 4:00  |
| <i>WSDOT Intersections Outside City Limits</i> |   |              |              |
| 45   | Charleston Blvd (SR 304) & Charleston Beach   | 6:45 – 7:45  | 3:00 – 4:00  |
| 49   | SR 3 SB & Belfair Valley/Sherman Heights      | 7:00 – 8:00  | 3:45 – 4:45  |
| 202  | SR 16 Spur & SR 3                             | 7:00 – 8:00  | 3:45 – 4:45  |
| 328  | SR 3 & Airport Rd                             | 7:00 – 8:00  | 3:15 – 4:15  |
| <i>Kitsap County Intersections</i>             |   |              |              |
| 48   | Loxie Eagans Blvd & National Ave              | 6:45 – 7:45  | 3:15 – 4:15  |

### Saturation Flow Rate Study

Signalized intersection saturation flow rate, an input in the HCM6 signalized Level of Service (LOS) methodology, is defined as the flow rate which would occur at a signalized intersection approach given saturated conditions and no interruption due to signal phasing. Per the WSDOT “Synchro & SimTraffic Protocol,” the preferred method for determining the appropriate value for intersection capacity analysis is to conduct a field study.

Transportation Solutions staff reviewed video footage collected at the westbound approach of Kitsap Way (SR 310) at Marine Drive from 3:00 PM to 5:00 PM on Wednesday, November 8, 2023 and conducted a saturation flow rate study using the Institute of Transportation Engineers (ITE) methodology. The analysis considered 30 signal cycles during the study period and found a saturation

flow rate of 1,607 vehicles per hour per lane (vphpl). This saturation flow rate was rounded to 1,610 vphpl for application to the intersection operations analysis described below.

### Analysis Methodology

Signalized and stop-controlled intersection operations were analyzed in Synchro 11 software using *Highway Capacity Manual 6<sup>th</sup> Edition* methodologies. Model inputs were defined according to the Washington State Department of Transportation (WSDOT) Synchro & SimTraffic Protocol. Roundabout intersections were analyzed in Sidra Intersection 9.1 software using the Sidra capacity model and WSDOT Sidra Policy Settings. Peak Hour Factor (PHF) was applied on a per-intersection basis.

Signalized intersection saturation flow rate, an input in the HCM 6 signalized Level of Service (LOS) methodology, is defined as the flow rate which would occur at a signalized intersection approach given saturated conditions and no interruption due to signal phasing. A saturation flow rate of 1,800 vehicles per hour per lane was applied at signalized intersections. This is consistent with WSDOT Olympic Region policy guidance.

## **NAVAL BASE KITSAP-BREMERTON GATE OPERATIONS**

Naval Base Kitsap-Bremerton (NBK-BR) is located on the north side of the Sinclair Inlet within the City of Bremerton. It includes five vehicle/pedestrian gates in the vicinity of the study area intersections.

An analysis of NBK-BR gate operations in the 2023 Joint Compatibility Transportation Plan (JCTP) indicated average peak hour vehicle delay of several minutes per vehicle at the vehicle gates, including an average of 584 seconds (9 minutes and 44 seconds) of delay per vehicle at the Naval Ave gate. Queuing as a result of gate delays spills back onto the City street network, impacting traffic operations and property access during periods of peak congestion.

The queuing resulting with NBK-BR gate operations may impact the study intersections during the AM and PM peak periods. However, because the queuing is not the result of intersection operations but is associated with NBK-BR gate capacity constraints, the gate-related congestion is not reflected in this analysis. Therefore, this analysis acknowledges the ongoing impacts of NBK-BR gate queueing but focuses on traffic operations and capacity constraints at public street intersections, consistent with Washington State Growth Management Act (GMA) requirements for Transportation Element certification.

Some study intersections may appear to operate with higher delay than indicated in the results of this analysis. However, queuing related to NBK-BR gate operations is not reflective of capacity constraints at nearby intersections in Bremerton.

## **2023 INTERSECTION LOS RESULTS**

Intersection LOS results for all study intersections are summarized in **Table 4**. Also identified in Table 4 is the critical lane group volume-to-capacity (v/c) ratio for each intersection, defined as the lane group with the highest (worst) volume-to-capacity ratio. This can indicate locations with capacity constraints, even where overall average delay does not indicate an LOS deficiency. Intersections with existing LOS deficiencies are highlighted in Table 4. Full intersection capacity reports are provided in Attachment 1.

**Table 4. 2023 Intersection LOS at Functionally Classified Intersections**

| ID  | Name                                      | Control | LOS Std | 2023 AM                 |                         |                        | 2023 PM                 |                         |                        |
|---|---|---------|---------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|------------------------|
|   |   |         |         | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> |
| <i>City of Bremerton Intersections</i>    |   |         |         |                         |                         |                        |                         |                         |                        |
| 13  | 6 <sup>th</sup> Street & N Montgomery Ave | Signal  | E       | A (2)                   | EBTR                    | 0.26                   | A (5)                   | NB                      | 0.44                   |
| 14  | 6 <sup>th</sup> Street & Naval Ave        | Signal  | E       | B (13)                  | EBR                     | 0.60                   | B (18)                  | WBTR                    | 0.68                   |
| 16  | 6 <sup>th</sup> Street & Veneta Ave       | Signal  | E       | A (5)                   | EBR                     | 0.30                   | A (7)                   | WBTR                    | 0.48                   |
| 18  | 6 <sup>th</sup> Street & Park Ave         | Signal  | E       | A (7)                   | EBR                     | 0.39                   | B (14)                  | NB                      | 0.71                   |
| 19  | 6 <sup>th</sup> Street & Pacific Ave      | AWSC    | E       | A (9)                   | EBTR                    | 0.23                   | B (12)                  | EBTR                    | 0.44                   |
| 20  | 6 <sup>th</sup> Street & Washington Ave   | Signal  | E       | A (7)                   | SB                      | 0.69                   | C (24)                  | EB                      | 0.93                   |
| 30  | 11 <sup>th</sup> Street & N Callow Ave    | Signal  | E       | B (11)                  | NBL                     | 0.47                   | B (14)                  | NBL                     | 0.82                   |
| 31  | 11 <sup>th</sup> Street & Naval Ave       | Signal  | E       | B (12)                  | WBL                     | 0.63                   | B (13)                  | NBL                     | 0.81                   |
| 32  | 11 <sup>th</sup> Street & High Ave        | Signal  | E       | B (18)                  | SBL                     | 0.75                   | A (6)                   | SBL                     | 0.65                   |
| 33  | 11 <sup>th</sup> Street & Park Ave        | Signal  | E       | A (9)                   | WBTR                    | 0.57                   | B (18)                  | WBTR                    | 0.80                   |
| 34  | Washington Ave & Manette Bridge           | Signal* | E       | B (18)                  | WBL                     | 0.80                   | E (62)                  | WBL                     | 0.97                   |
| 43  | Burwell St & Washington Ave               | Signal  | E       | A (7)                   | EB                      | 0.51                   | B (11)                  | EB                      | 0.72                   |
| 46  | Werner Rd & Union Ave/Auto Center         | Signal  | E       | B (11)                  | WBTR                    | 0.58                   | D (36)                  | WBL                     | 0.93                   |
| 47  | Werner/Loxie Eagans & Auto Center         | Signal  | E       | A (9)                   | WBL                     | 0.55                   | B (14)                  | WBL                     | 0.76                   |
| 60  | Perry Ave & Sheridan Rd                   | TWSC    | E       | B (14)                  | EB                      | 0.29                   | C (18)                  | EB                      | 0.45                   |
| 67  | Perry Ave & 11 <sup>th</sup> Street       | AWSC    | E       | A (8)                   | WB                      | 0.16                   | A (9)                   | EB                      | 0.29                   |
| 70  | Wheaton Way & Lebo Blvd/Cherry Ave        | AWSC    | E       | A (9)                   | EBTR                    | 0.20                   | B (11)                  | NBL                     | 0.43                   |
| 74  | Manette Bridge/ Wheaton Way & Harkins St  | RAB     | E       | A (7)                   | EB                      | 0.28                   | A (7)                   | EB                      | 0.68                   |
| 85  | Lebo Blvd & Sheridan Rd                   | TWSC    | E       | B (10)                  | WB                      | 0.07                   | B (13)                  | WB                      | 0.13                   |
| 88  | 11 <sup>th</sup> Street & Pacific Ave     | AWSC    | E       | A (10)                  | WBL                     | 0.32                   | B (13)                  | WBL                     | 0.57                   |
| 307                                       | Naval Ave & 15 <sup>th</sup> Street       | Signal  | D       | A (6)                   | EB                      | 0.37                   | A (6)                   | WB                      | 0.29                   |
| <i>WSDOT Intersections in City Limits</i> |   |         |         |                         |                         |                        |                         |                         |                        |
| 2   | Kitsap Way (SR 310) & SR 3 SB Off-Ramp    | Signal  | D       | C (35)                  | SBLT                    | 0.88                   | D (44)                  | SBLT                    | 0.90                   |
| 3   | Kitsap Way (SR 310) & SR 3 NB Ramp        | Signal  | D       | B (17)                  | WBT                     | 0.81                   | B (18)                  | WBT                     | 0.91                   |
| 4   | Kitsap Way (SR 310) & Shorewood Dr        | Signal  | D       | B (17)                  | EBT                     | 0.92                   | B (16)                  | EBT                     | 0.93                   |
| 5   | Kitsap Way (SR 310) & Ostrich Bay Ave     | Signal  | D       | B (16)                  | WBTR                    | 0.90                   | C (24)                  | WBTR                    | 1.01                   |
| 6   | Kitsap Way (SR 310) & Oyster Bay Ave      | Signal  | D       | A (4)                   | NBL                     | 0.56                   | A (5)                   | NBR                     | 0.59                   |
| 7   | Kitsap Way (SR 310) & National Ave        | Signal  | D       | C (21)                  | EBT                     | 0.92                   | C (30)                  | EBT                     | 0.87                   |

| ID  | Name  | Control | LOS Std | 2023 AM                 |                         |                        | 2023 PM                 |                         |                        |
|-----|---|---------|---------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|------------------------|
|     |   |         |         | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> |
| 8   | Kitsap Way (SR 310) & Marine Dr                     | Signal  | D       | D (45)                  | EBT                     | 0.96                   | E (69)                  | WBT                     | 1.15                   |
| 9   | Kitsap Way (SR 310) & Corbett Dr                    | TWSC    | D       | D (33)                  | SB                      | 0.19                   | D (29)                  | SB                      | 0.20                   |
| 10  | Kitsap Way (SR 310) & 11 <sup>th</sup> St           | Signal  | D       | B (14)                  | EBL                     | 0.35                   | B (19)                  | EBL                     | 0.61                   |
| 11  | Kitsap Way (SR 310) & Wycoff Ave                    | Signal  | D       | A (6)                   | NB                      | 0.53                   | A (5)                   | NB                      | 0.60                   |
| 12  | Kitsap Way (SR 310)/6 <sup>th</sup> St & Callow Ave | Signal  | D       | B (16)                  | SBTR                    | 0.82                   | B (19)                  | NBTR                    | 0.86                   |
| 17  | Warren Ave (SR 303) & 6 <sup>th</sup> Street        | Signal  | E       | B (18)                  | EBR                     | 0.70                   | C (30)                  | WBTR                    | 0.89                   |
| 21  | Warren Ave (SR 303) & Burwell St (SR 304)           | Signal  | E*      | C (34)                  | WBT                     | 0.88                   | D (45)                  | WBT                     | 0.93                   |
| 22  | Warren Ave (SR 303) & 11 <sup>th</sup> Street       | Signal  | E*      | C (25)                  | EBL                     | 0.91                   | E (70)                  | NBTR                    | 1.04                   |
| 23  | Warren Ave (SR 303) & 13 <sup>th</sup> Street       | Signal  | E*      | B (19)                  | EB                      | 0.70                   | A (5)                   | EB                      | 0.77                   |
| 24  | Warren Ave (SR 303) & 16 <sup>th</sup> Street       | Signal  | E*      | A (8)                   | NBL                     | 0.84                   | A (8)                   | NBL                     | 0.83                   |
| 25  | Wheaton Way (SR 303) & Sheridan Rd                  | Signal  | E*      | D (52)                  | SBTR                    | 0.89                   | E (58)                  | NBT                     | 0.98                   |
| 26  | Wheaton Way (SR 303) & Sylvan Way                   | Signal  | E*      | C (21)                  | WBL                     | 0.98                   | C (29)                  | WBL                     | 1.07                   |
| 27  | Wheaton Way (SR 303) & Hollis Street                | Signal  | E*      | A (2)                   | SBTR                    | 0.36                   | A (7)                   | NBTR                    | 0.64                   |
| 28  | Wheaton Way (SR 303) & Riddell Rd                   | Signal  | E*      | C (27)                  | WBR                     | 1.00                   | D (47)                  | EBR                     | 1.02                   |
| 35  | Burwell St (SR 304) & N Callow Ave                  | Signal  | D       | D (44)                  | WBL                     | 1.07                   | D (35)                  | WBL                     | 0.99                   |
| 36  | Burwell St (SR 304) & N Montgomery Ave              | Signal  | D       | A (5)                   | NB                      | 0.47                   | A (5)                   | SB                      | 0.45                   |
| 37  | Burwell St (SR 304) & Naval Ave                     | Signal  | D       | B (20)                  | WBL                     | 0.78                   | C (29)                  | NBL                     | 0.82                   |
| 38  | Burwell St (SR 304) & State Ave                     | Signal  | D       | A (6)                   | WB                      | 0.44                   | A (9)                   | WB                      | 0.57                   |
| 40  | Burwell St (SR 304) & Park Ave                      | Signal  | D       | A (4)                   | EBT                     | 0.36                   | A (6)                   | SB                      | 0.72                   |
| 42  | Burwell St (SR 304) & Pacific Ave                   | Signal  | D       | A (8)                   | EBR                     | 0.56                   | A (8)                   | WB                      | 0.52                   |
| 44  | Charleston Blvd (SR 304) & Farragut Ave             | Signal  | D       | B (17)                  | NBT                     | 0.78                   | C (25)                  | WBL                     | 0.91                   |
| 76  | SR 303 SB Ramp & Callahan Dr                        | TWSC    | E       | A (9)                   | WBL                     | 0.07                   | A (9)                   | SB                      | 0.08                   |
| 93  | SR 3 NB Ramps & Austin Dr                           | TWSC    | D       | B (11)                  | WBR                     | 0.33                   | B (12)                  | WBLT                    | 0.25                   |
| 94  | SR 3 SB Ramps & Austin Dr                           | TWSC    | D       | C (17)                  | EB                      | 0.27                   | D (26)                  | EB                      | 0.74                   |
| 104 | Loxie Eagans Blvd & SR 3 SB Ramps                   | TWSC    | D       | F (77)                  | SBLT                    | 0.84                   | F (>300)                | SBLT                    | 1.75                   |
| 105 | Loxie Eagans Blvd & SR 3 NB ramps                   | Signal  | D       | A (8)                   | NBLT                    | 0.68                   | B (12)                  | NBLT                    | 0.78                   |

| ID   | Name  | Control | LOS Std | 2023 AM                 |                         |                        | 2023 PM                 |                         |                        |
|--|---|---------|---------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|------------------------|
|  |   |         |         | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> | LOS (Del.) <sup>1</sup> | Crit. Lane <sup>2</sup> | Crit. v/c <sup>3</sup> |
| 137  | Wheaton Way (SR 303) & Broad St             | Signal  | E       | A (6)                   | EBTR                    | 0.50                   | B (10)                  | NBTR                    | 0.63                   |
| 216  | SR 3 & Imperial Way                         | Signal  | D       | B (11)                  | NBT                     | 0.85                   | E (74)                  | SBT                     | 1.15                   |
| <i>WSDOT Intersections Outside City Limits</i> |   |         |         |                         |                         |                        |                         |                         |                        |
| 45   | Charleston Blvd (SR 304) & Charleston Beach | Signal  | D       | A (9)                   | NBT                     | 0.68                   | C (22)                  | EB                      | 0.82                   |
| 49   | SR 3 SB & Belfair Valley/Sherman Heights    | AWSC    | D       | A (8)                   | NB                      | 0.16                   | E (38)                  | SB                      | 0.96                   |
| 202  | SR 16 Spur & SR 3                           | Signal  | D       | D (40)                  | EBT                     | 0.93                   | E (66)                  | SBT                     | 1.01                   |
| 328  | SR 3 & Airport Rd                           | RAB     | E       | A (9)                   | NB                      | 0.68                   | A (9)                   | SB                      | 0.67                   |
| <i>Kitsap County Intersections</i>             |   |         |         |                         |                         |                        |                         |                         |                        |
| 48   | Loxie Eagans Blvd & National Ave            | Signal  | *4      | C (23)                  | SBR                     | 0.84                   | E (77)                  | SBR                     | 1.32                   |

E\*: LOS E/Mitigated standard; LOS-deficient intersections are highlighted

<sup>1</sup>Intersection Level of Service and delay

<sup>2</sup>Critical lane, defined as the lane group with the highest volume-to-capacity ratio

<sup>3</sup>Volume-to-capacity ratio of the critical lane group

<sup>4</sup>Kitsap County has not adopted a minimum intersection LOS standard

\*This analysis was developed before construction of new roundabout at Washington Ave & Manette Bridge.

Three intersections within city limits currently operates below its minimum adopted LOS standard. All three LOS-deficient intersections are located on WSDOT-owned routes.

- Kitsap Way (SR 310) & Marine Drive operates at LOS D in the AM peak hour and LOS E in the PM peak hour. In the PM peak hour, the westbound Kitsap Way approach operates overcapacity with v/c ratio of 1.15 and 95<sup>th</sup> percentile queue of over 1,000 feet. Mitigation may require widening of Kitsap Way on both sides of the intersection. The feasibility of major intersection improvements would need to be evaluated in coordination with WSDOT.
- Loxie Eagans Blvd & SR 3 southbound off-ramp operates at LOS F in both AM and PM peak hours. The stop-controlled SR 3 southbound off-ramp operates with high delay due to high volume on Loxie Eagans Blvd. The intersection is identified for roundabout improvement in the JCTP Preferred Alternative and the SR 16 TNB to SR 3 Congestion Study.
- SR 3 & Imperial Way operates at LOS E in the PM peak hour due to high southbound through demand traveling to Belfair and Mason County. LOS mitigation may include approach widening and rechannelization or installation of a roundabout. The feasibility of major intersection improvements would need to be evaluated in coordination with WSDOT.

Outside Bremerton city limits, two intersections operate below their LOS standard.

- Belfair Valley Rd/Sherman Heights Rd & SR 3 southbound off-ramp intersection operates at LOS E in the PM peak hour due to high southbound vehicle demand on Sherman Heights Rd. Sherman Heights Rd has been observed to operate as an SR 3 bypass route during periods of

high congestion, particularly during the PM peak hour. LOS mitigation would encourage greater SR 3 bypass demand by reducing delay.

- SR 16 Spur & SR 3 operates at LOS D in the AM peak hour due to high eastbound through demand traveling into Bremerton and LOS E in the PM peak hour due to high southbound demand. LOS mitigation may include signal timing changes or installation of a roundabout. The feasibility of major intersection improvements would need to be evaluated in coordination with WSDOT.

Seven intersections inside the Bremerton City Limits operate at their minimum adopted LOS standard. These intersections, summarized below, may reach LOS-deficient status with ongoing local and regional growth. Six of the seven intersections identified below are located on WSDOT-owned routes.

- Washington Avenue & Manette Bridge operates at LOS E in the PM peak hour with a v/c ratio of 0.97 on the westbound left-turn movement. This analysis assumed signal control at the intersection. After completion of this analysis, the intersection was reconstructed as a roundabout.
- Kitsap Way (SR 310) & SR 3 southbound off-ramp operates at LOS D in the PM peak hour. The draft West Kitsap Way Planning Study identifies future rechannelization of the SR 3 southbound off-ramp which will provide additional intersection capacity.
- Kitsap Way (SR 310) & Corbett Drive operates at LOS D in the AM and PM peak hours. Minor approach stop-controlled movements operate with high delay during peak periods due to high demand on Kitsap Way.
- Warren Avenue (SR 303) & 11<sup>th</sup> Street operates at LOS E in the PM peak hour. The eastbound and westbound approaches operate at LOS E, and the northbound approach operates at LOS F.
- Wheaton Way (SR 303) & Sheridan Road operates at LOS E in the PM peak hour. The eastbound and southbound approaches operate at LOS E, and the westbound approach operates at LOS F.
- Burwell Street (SR 304) & N Callow Avenue operates at LOS D in the AM and PM peak hours. The westbound left-turn is the critical movement and operates with v/c of 1.07 in the AM and 0.99 in the PM peak hour.
- Austin Drive & SR 3 southbound off-ramp operates at LOS D in the PM peak hour. The SR 3 southbound off-ramp carries a relatively high right-turn volume, which is likely the result of vehicles bypassing peak hour congestion on southbound SR 3.

#### Attachment 1. Intersection Capacity Reports

# HCM 6th Signalized Intersection Summary

## 2: Auto Center Way/SR 3 SB Off-Ramp & Kitsap Way/Kitsap Way (SR 310)

04/29/2024



| Movement  | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations   |      | ↑↑   | ↑    | ↑↑   | ↑↑   |      | ↑    |      | ↑    | ↑    | ↑    | ↑    |
| Traffic Volume (veh/h)  | 0    | 283  | 126  | 208  | 175  | 0    | 24   | 0    | 119  | 504  | 80   | 7    |
| Future Volume (veh/h)   | 0    | 283  | 126  | 208  | 175  | 0    | 24   | 0    | 119  | 504  | 80   | 7    |
| Initial Q (Qb), veh   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)   | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach   |      | No   |      | No   |      | No   |      | No   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln  | 0    | 1547 | 1547 | 1522 | 1522 | 0    | 1384 | 0    | 1384 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h  | 0    | 329  | 147  | 242  | 203  | 0    | 28   | 0    | 0    | 652  | 0    | 0    |
| Peak Hour Factor  | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, %  | 0    | 5    | 5    | 7    | 7    | 0    | 18   | 0    | 18   | 4    | 4    | 4    |
| Cap, veh/h  | 0    | 1567 | 699  | 295  | 1953 | 0    | 0    | 0    | 0    | 742  | 0    | 0    |
| Arrive On Green   | 0.00 | 0.53 | 0.53 | 0.18 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 |
| Sat Flow, veh/h   | 0    | 3017 | 1311 | 2812 | 2968 | 0    | 0    | 0    | 0    | 2971 | 0    | 1322 |
| Grp Volume(v), veh/h  | 0    | 329  | 147  | 242  | 203  | 0    | 0    | 0.0  | 0    | 652  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln  | 0    | 1470 | 1311 | 1406 | 1446 | 0    | 0    | 0    | 0    | 1485 | 0    | 1322 |
| Q Serve(g_s), s   | 0.0  | 7.1  | 7.1  | 9.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 25.3 | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s   | 0.0  | 7.1  | 7.1  | 9.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 25.3 | 0.0  | 0.0  |
| Prop In Lane  | 0.00 |      | 1.00 | 1.00 |      | 0.00 |      |      |      | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h  | 0    | 1567 | 699  | 295  | 1953 | 0    | 0    | 0    | 0    | 742  | 0    | 0    |
| V/C Ratio(X)  | 0.00 | 0.21 | 0.21 | 0.82 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h   | 0    | 1567 | 699  | 434  | 1953 | 0    | 0    | 0    | 0    | 1003 | 0    | 0    |
| HCM Platoon Ratio   | 1.00 | 1.00 | 1.00 | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)  | 0.00 | 1.00 | 1.00 | 0.99 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh  | 0.0  | 14.7 | 14.7 | 48.4 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 43.3 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh  | 0.0  | 0.3  | 0.7  | 9.6  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 7.5  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln  | 0.0  | 4.3  | 4.0  | 6.5  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 15.1 | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh  | 0.0  | 15.0 | 15.4 | 58.0 | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 50.8 | 0.0  | 0.0  |
| LnGrp LOS   | A    | B    | B    | E    | A    | A    | A    | A    | A    | D    | A    | A    |
| Approach Vol, veh/h   |      | 476  |      |      | 445  |      |      |      |      |      |      | 652  |
| Approach Delay, s/veh   |      | 15.2 |      |      | 31.6 |      |      |      |      |      |      | 50.8 |
| Approach LOS  |      | B    |      |      | C    |      |      |      |      |      |      | D    |
| Timer - Assigned Phs  |      |      | 3    | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s  |      |      | 17.1 | 68.5 |      | 34.5 |      | 85.5 |      |      |      |      |
| Change Period (Y+Rc), s   |      |      | 4.5  | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s   |      |      | 18.5 | 31.5 |      | 40.5 |      | 54.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s  |      |      | 11.9 | 9.1  |      | 27.3 |      | 2.0  |      |      |      |      |
| Green Ext Time (p_c), s   |      |      | 0.6  | 3.1  |      | 2.6  |      | 1.7  |      |      |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay  |      |      | 34.6 |      |      |      |      |      |      |      |      |      |
| HCM 6th LOS   |      |      | C    |      |      |      |      |      |      |      |      |      |
| <b>Notes</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| User approved volume balancing among the lanes for turning movement.  |      |      |      |      |      |      |      |      |      |      |      |      |
| Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |      |      |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 3: SR 3 NB Off-Ramp/SR 3 NB On-Ramp & Kitsap Way (SR 310)

04/29/2024



| Movement  | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|---|------|------|------|-------|------|------|------|------|------|-----|-----|-----|
| Lane Configurations   |      |      |      |       |      |      |      |      |      |     |     |     |
| Traffic Volume (veh/h)  | 60   | 866  | 0    | 0     | 344  | 587  | 50   | 1    | 103  | 0   | 0   | 0   |
| Future Volume (veh/h)   | 60   | 866  | 0    | 0     | 344  | 587  | 50   | 1    | 103  | 0   | 0   | 0   |
| Initial Q (Qb), veh   | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Ped-Bike Adj(A_pbT)   | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj  | 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   |      |     |     |     |
| Adj Sat Flow, veh/h/ln  | 1547 | 1547 | 0    | 0     | 1572 | 1572 | 1510 | 1510 | 1510 |     |     |     |
| Adj Flow Rate, veh/h  | 70   | 1007 | 0    | 0     | 400  | 0    | 58   | 1    | 0    |     |     |     |
| Peak Hour Factor  | 0.86 | 0.86 | 0.86 | 0.86  | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |     |     |     |
| Percent Heavy Veh, %  | 5    | 5    | 0    | 0     | 3    | 3    | 8    | 8    | 8    |     |     |     |
| Cap, veh/h  | 1054 | 2545 | 0    | 0     | 493  |      | 72   | 1    |      |     |     |     |
| Arrive On Green   | 1.00 | 1.00 | 0.00 | 0.00  | 0.28 | 0.00 | 0.05 | 0.05 | 0.00 |     |     |     |
| Sat Flow, veh/h   | 1474 | 3017 | 0    | 0     | 3066 | 1332 | 1414 | 24   | 1279 |     |     |     |
| Grp Volume(v), veh/h  | 70   | 1007 | 0    | 0     | 400  | 0    | 59   | 0    | 0    |     |     |     |
| Grp Sat Flow(s),veh/h/ln  | 1474 | 1470 | 0    | 0     | 1494 | 1332 | 1439 | 0    | 1279 |     |     |     |
| Q Serve(g_s), s   | 0.0  | 0.0  | 0.0  | 0.0   | 15.0 | 0.0  | 4.9  | 0.0  | 0.0  |     |     |     |
| Cycle Q Clear(g_c), s   | 0.0  | 0.0  | 0.0  | 0.0   | 15.0 | 0.0  | 4.9  | 0.0  | 0.0  |     |     |     |
| Prop In Lane  | 1.00 |      | 0.00 | 0.00  |      | 1.00 | 0.98 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h  | 1054 | 2545 | 0    | 0     | 493  |      | 73   | 0    |      |     |     |     |
| V/C Ratio(X)  | 0.07 | 0.40 | 0.00 | 0.00  | 0.81 |      | 0.81 | 0.00 |      |     |     |     |
| Avail Cap(c_a), veh/h   | 1054 | 2545 | 0    | 0     | 1693 |      | 336  | 0    |      |     |     |     |
| HCM Platoon Ratio   | 2.00 | 2.00 | 1.00 | 1.00  | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(l)  | 0.76 | 0.76 | 0.00 | 0.00  | 0.93 | 0.00 | 1.00 | 0.00 | 0.00 |     |     |     |
| Uniform Delay (d), s/veh  | 0.0  | 0.0  | 0.0  | 0.0   | 41.7 | 0.0  | 56.4 | 0.0  | 0.0  |     |     |     |
| Incr Delay (d2), s/veh  | 0.0  | 0.4  | 0.0  | 0.0   | 12.6 | 0.0  | 18.4 | 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  |     |     |     |
| %ile BackOfQ(95%),veh/lr  | 0.0  | 0.2  | 0.0  | 0.0   | 9.5  | 0.0  | 3.8  | 0.0  | 0.0  |     |     |     |
| Unsig. Movement Delay, s/veh  |      |      |      |       |      |      |      |      |      |     |     |     |
| LnGrp Delay(d),s/veh  | 0.0  | 0.4  | 0.0  | 0.0   | 54.3 | 0.0  | 74.8 | 0.0  | 0.0  |     |     |     |
| LnGrp LOS   | A    | A    | A    | A     | D    |      | E    | A    |      |     |     |     |
| Approach Vol, veh/h   |      | 1077 |      |       | 400  |      |      | 59   |      |     |     |     |
| Approach Delay, s/veh   |      | 0.3  |      |       | 54.3 |      |      | 74.8 |      |     |     |     |
| Approach LOS  |      | A    |      |       | D    |      |      | E    |      |     |     |     |
| Timer - Assigned Phs  |      |      |      | 4     |      | 6    | 7    | 8    |      |     |     |     |
| Phs Duration (G+Y+Rc), s  |      |      |      | 108.9 |      | 11.1 | 84.1 | 24.8 |      |     |     |     |
| Change Period (Y+Rc), s   |      |      |      | 5.0   |      | 5.0  | 5.0  | 5.0  |      |     |     |     |
| Max Green Setting (Gmax), s   |      |      |      | 82.0  |      | 28.0 | 9.0  | 68.0 |      |     |     |     |
| Max Q Clear Time (g_c+I1), s  |      |      |      | 2.0   |      | 6.9  | 2.0  | 17.0 |      |     |     |     |
| Green Ext Time (p_c), s   |      |      |      | 9.2   |      | 0.2  | 0.1  | 2.8  |      |     |     |     |
| <b>Intersection Summary</b>   |      |      |      |       |      |      |      |      |      |     |     |     |
| HCM 6th Ctrl Delay  |      |      |      | 17.3  |      |      |      |      |      |     |     |     |
| HCM 6th LOS   |      |      |      | B     |      |      |      |      |      |     |     |     |
| <b>Notes</b>  |      |      |      |       |      |      |      |      |      |     |     |     |
| Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |       |      |      |      |      |      |     |     |     |

# HCM 6th Signalized Intersection Summary

## 4: Shorewood Dr & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 33   | 878  | 28   | 3     | 764  | 11   | 12   | 2    | 1    | 42   | 0    | 60   |
| Future Volume (veh/h)        | 33   | 878  | 28   | 3     | 764  | 11   | 12   | 2    | 1    | 42   | 0    | 60   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 0.99 |      | 0.99 | 0.99 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1560 | 1560  | 1560 | 1560 | 1447 | 1447 | 1447 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 38   | 998  | 0    | 3     | 868  | 12   | 14   | 2    | 1    | 48   | 0    | 68   |
| Peak Hour Factor             | 0.88 | 0.88 | 0.88 | 0.88  | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 4     | 4    | 4    | 13   | 13   | 13   | 2    | 2    | 2    |
| Cap, veh/h                   | 293  | 1090 |      | 732   | 2249 | 1002 | 99   | 11   | 3    | 168  | 0    | 101  |
| Arrive On Green              | 0.07 | 0.74 | 0.00 | 0.85  | 1.00 | 1.00 | 0.08 | 0.08 | 0.08 | 0.08 | 0.00 | 0.08 |
| Sat Flow, veh/h              | 1485 | 2964 | 1322 | 1485  | 2964 | 1320 | 588  | 147  | 46   | 1418 | 0    | 1333 |
| Grp Volume(v), veh/h         | 38   | 998  | 0    | 3     | 868  | 12   | 17   | 0    | 0    | 48   | 0    | 68   |
| Grp Sat Flow(s),veh/h/ln     | 1485 | 1482 | 1322 | 1485  | 1482 | 1320 | 781  | 0    | 0    | 1418 | 0    | 1333 |
| Q Serve(g_s), s              | 2.0  | 32.7 | 0.0  | 0.0   | 0.0  | 0.0  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 6.0  |
| Cycle Q Clear(g_c), s        | 2.0  | 32.7 | 0.0  | 0.0   | 0.0  | 0.0  | 5.0  | 0.0  | 0.0  | 3.9  | 0.0  | 6.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 0.82 |      | 0.06 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 293  | 1090 |      | 732   | 2249 | 1002 | 114  | 0    | 0    | 168  | 0    | 101  |
| V/C Ratio(X)                 | 0.13 | 0.92 |      | 0.00  | 0.39 | 0.01 | 0.15 | 0.00 | 0.00 | 0.29 | 0.00 | 0.67 |
| Avail Cap(c_a), veh/h        | 364  | 1544 |      | 732   | 2249 | 1002 | 349  | 0    | 0    | 436  | 0    | 355  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.90 | 0.90 | 0.00 | 0.93  | 0.93 | 0.93 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 25.6 | 14.3 | 0.0  | 4.0   | 0.0  | 0.0  | 54.1 | 0.0  | 0.0  | 53.0 | 0.0  | 54.0 |
| Incr Delay (d2), s/veh       | 0.2  | 12.2 | 0.0  | 0.0   | 0.5  | 0.0  | 0.6  | 0.0  | 0.0  | 0.9  | 0.0  | 7.4  |
| 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(95%),veh/ln     | 1.3  | 10.1 | 0.0  | 0.0   | 0.3  | 0.0  | 0.9  | 0.0  | 0.0  | 2.6  | 0.0  | 3.9  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 25.8 | 26.5 | 0.0  | 4.0   | 0.5  | 0.0  | 54.7 | 0.0  | 0.0  | 53.9 | 0.0  | 61.4 |
| LnGrp LOS                    | C    | C    |      | A     | A    | A    | D    | A    | A    | D    | A    | E    |
| Approach Vol, veh/h          |      | 1036 |      |       | 883  |      |      | 17   |      |      | 116  |      |
| Approach Delay, s/veh        |      | 26.5 |      |       | 0.5  |      |      | 54.7 |      |      | 58.3 |      |
| Approach LOS                 |      | C    |      |       | A    |      |      | D    |      |      | E    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 14.1 | 56.2 | 49.7  |      | 14.1 | 9.3  | 96.6 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  | 5.5  | * 5.5 |      | 5.0  | 5.0  | 5.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 32.0 | 10.0 | * 63  |      | 32.0 | 10.0 | 62.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 7.0  | 2.0  | 34.7  |      | 8.0  | 4.0  | 2.0  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.0  | 0.0  | 9.5   |      | 0.4  | 0.0  | 9.2  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 17.3 |
| HCM 6th LOS        | B    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
 5: Ostrich Bay Ave/Private Drwy & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 0    | 921  | 19   | 16    | 808  | 0    | 64   | 0    | 13   | 0    | 0    | 0    |
| Future Volume (veh/h)        | 0    | 921  | 19   | 16    | 808  | 0    | 64   | 0    | 13   | 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 |      | 0.98 | 1.00  |      | 1.00 | 0.99 |      | 0.99 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1560 | 1572  | 1572 | 1572 | 1522 | 1522 | 1522 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 0    | 1047 | 22   | 18    | 918  | 0    | 73   | 0    | 15   | 0    | 0    | 0    |
| Peak Hour Factor             | 0.88 | 0.88 | 0.88 | 0.88  | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 3     | 3    | 3    | 7    | 7    | 7    | 0    | 0    | 0    |
| Cap, veh/h                   | 780  | 2309 | 1008 | 239   | 1020 | 0    | 153  | 0    | 118  | 0    | 112  | 0    |
| Arrive On Green              | 0.00 | 1.00 | 1.00 | 0.05  | 0.68 | 0.00 | 0.07 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 |
| Sat Flow, veh/h              | 1485 | 2964 | 1294 | 1497  | 3066 | 0    | 1350 | 0    | 1279 | 0    | 1610 | 0    |
| Grp Volume(v), veh/h         | 0    | 1047 | 22   | 18    | 918  | 0    | 73   | 0    | 15   | 0    | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1485 | 1482 | 1294 | 1497  | 1494 | 0    | 1350 | 0    | 1279 | 0    | 1610 | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 1.0   | 30.3 | 0.0  | 6.4  | 0.0  | 1.3  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 0.0  | 1.0   | 30.3 | 0.0  | 6.4  | 0.0  | 1.3  | 0.0  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.00 | 1.00 |      | 1.00 | 0.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 780  | 2309 | 1008 | 239   | 1020 | 0    | 153  | 0    | 118  | 0    | 112  | 0    |
| V/C Ratio(X)                 | 0.00 | 0.45 | 0.02 | 0.08  | 0.90 | 0.00 | 0.48 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 780  | 2309 | 1008 | 330   | 1531 | 0    | 431  | 0    | 381  | 0    | 443  | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.00 | 0.91 | 0.91 | 0.93  | 0.93 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 0.0  | 0.0  | 0.0  | 27.7  | 17.3 | 0.0  | 54.9 | 0.0  | 50.1 | 0.0  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.6  | 0.0  | 0.1   | 11.7 | 0.0  | 2.3  | 0.0  | 0.5  | 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  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.0  | 0.3  | 0.0  | 0.6   | 11.0 | 0.0  | 4.1  | 0.0  | 0.8  | 0.0  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 0.0  | 0.6  | 0.0  | 27.9  | 29.1 | 0.0  | 57.2 | 0.0  | 50.6 | 0.0  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | C     | C    | A    | E    | A    | D    | A    | A    | A    |
| Approach Vol, veh/h          |      | 1069 |      |       | 936  |      |      | 88   |      |      |      | 0    |
| Approach Delay, s/veh        |      | 0.6  |      |       | 29.0 |      |      | 56.1 |      |      |      | 0.0  |
| Approach LOS                 |      | A    |      |       | C    |      |      | E    |      |      |      |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 13.3 | 60.2 | 46.5  |      | 13.3 | 7.7  | 99.0 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  | 5.5  | * 5.5 |      | 5.0  | 5.0  | 5.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 33.0 | 10.0 | * 62  |      | 33.0 | 10.0 | 61.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 8.4  | 0.0  | 32.3  |      | 0.0  | 3.0  | 2.0  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.4  | 0.0  | 8.6   |      | 0.0  | 0.0  | 12.3 |      |      |      |      |

Intersection Summary

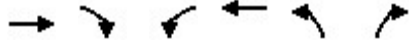
|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 15.6 |
| HCM 6th LOS        | B    |

Notes

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

HCM 6th Signalized Intersection Summary  
 6: Oyster Bay Ave & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBT  | EBR  | WBL  | WBT  | NBL  | NBR   |
|------------------------------|------|------|------|------|------|-------|
| Lane Configurations          | ↑↑   | ↗    | ↖    | ↑↑   | ↗    | ↖     |
| Traffic Volume (veh/h)       | 897  | 23   | 32   | 815  | 49   | 59    |
| Future Volume (veh/h)        | 897  | 23   | 32   | 815  | 49   | 59    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     |
| Ped-Bike Adj(A_pbT)          |      | 0.98 | 1.00 |      | 1.00 | 1.00  |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  |
| Work Zone On Approach        | No   |      |      | No   | No   |       |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1585 | 1585 | 1560 | 1560  |
| Adj Flow Rate, veh/h         | 1031 | 26   | 37   | 937  | 56   | 68    |
| Peak Hour Factor             | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87  |
| Percent Heavy Veh, %         | 3    | 3    | 2    | 2    | 4    | 4     |
| Cap, veh/h                   | 2307 | 1007 | 526  | 2558 | 100  | 136   |
| Arrive On Green              | 1.00 | 1.00 | 0.07 | 1.00 | 0.07 | 0.07  |
| Sat Flow, veh/h              | 3066 | 1304 | 1509 | 3091 | 1485 | 1322  |
| Grp Volume(v), veh/h         | 1031 | 26   | 37   | 937  | 56   | 68    |
| Grp Sat Flow(s),veh/h/ln     | 1494 | 1304 | 1509 | 1506 | 1485 | 1322  |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.5  | 0.0  | 4.4  | 5.8   |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 0.5  | 0.0  | 4.4  | 5.8   |
| Prop In Lane                 |      | 1.00 | 1.00 |      | 1.00 | 1.00  |
| Lane Grp Cap(c), veh/h       | 2307 | 1007 | 526  | 2558 | 100  | 136   |
| V/C Ratio(X)                 | 0.45 | 0.03 | 0.07 | 0.37 | 0.56 | 0.50  |
| Avail Cap(c_a), veh/h        | 2307 | 1007 | 611  | 2558 | 421  | 421   |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00  |
| Upstream Filter(l)           | 0.88 | 0.88 | 0.93 | 0.93 | 1.00 | 1.00  |
| Uniform Delay (d), s/veh     | 0.0  | 0.0  | 1.8  | 0.0  | 54.3 | 50.9  |
| Incr Delay (d2), s/veh       | 0.6  | 0.0  | 0.1  | 0.4  | 4.9  | 2.8   |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| %ile BackOfQ(95%),veh/lr     | 0.3  | 0.0  | 0.2  | 0.2  | 3.2  | 3.6   |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |
| LnGrp Delay(d),s/veh         | 0.6  | 0.0  | 1.9  | 0.4  | 59.1 | 53.8  |
| LnGrp LOS                    | A    | A    | A    | A    | E    | D     |
| Approach Vol, veh/h          | 1057 |      |      | 974  | 124  |       |
| Approach Delay, s/veh        | 0.5  |      |      | 0.4  | 56.2 |       |
| Approach LOS                 | A    |      |      | A    | E    |       |
| Timer - Assigned Phs         |      |      | 3    | 4    | 6    | 8     |
| Phs Duration (G+Y+Rc), s     |      |      | 9.3  | 97.7 | 13.1 | 106.9 |
| Change Period (Y+Rc), s      |      |      | 5.0  | 5.0  | 5.0  | 5.0   |
| Max Green Setting (Gmax), s  |      |      | 11.0 | 60.0 | 34.0 | 76.0  |
| Max Q Clear Time (g_c+I1), s |      |      | 2.5  | 2.0  | 7.8  | 2.0   |
| Green Ext Time (p_c), s      |      |      | 0.0  | 12.0 | 0.4  | 10.3  |
| <b>Intersection Summary</b>  |      |      |      |      |      |       |
| HCM 6th Ctrl Delay           |      |      | 3.7  |      |      |       |
| HCM 6th LOS                  |      |      | A    |      |      |       |

HCM 6th Signalized Intersection Summary  
 7: National Ave/Private Drwy & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 0    | 833  | 88   | 206  | 810  | 1    | 54   | 0    | 192  | 0    | 1    | 1    |
| Future Volume (veh/h)        | 0    | 833  | 88   | 206  | 810  | 1    | 54   | 0    | 192  | 0    | 1    | 1    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 0.99 |      | 1.00 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1560 | 1572 | 1572 | 1572 | 1522 | 1522 | 1522 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 0    | 915  | 0    | 226  | 890  | 1    | 59   | 0    | 211  | 0    | 1    | 1    |
| Peak Hour Factor             | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 3    | 3    | 3    | 7    | 7    | 7    | 0    | 0    | 0    |
| Cap, veh/h                   | 1    | 999  |      | 550  | 2272 | 3    | 305  | 0    | 235  | 0    | 135  | 135  |
| Arrive On Green              | 0.00 | 0.67 | 0.00 | 0.73 | 1.00 | 1.00 | 0.18 | 0.00 | 0.18 | 0.00 | 0.18 | 0.18 |
| Sat Flow, veh/h              | 1485 | 2964 | 1322 | 1497 | 3062 | 3    | 1340 | 0    | 1284 | 0    | 735  | 735  |
| Grp Volume(v), veh/h         | 0    | 915  | 0    | 226  | 434  | 457  | 59   | 0    | 211  | 0    | 0    | 2    |
| Grp Sat Flow(s),veh/h/ln     | 1485 | 1482 | 1322 | 1497 | 1494 | 1572 | 1340 | 0    | 1284 | 0    | 0    | 1470 |
| Q Serve(g_s), s              | 0.0  | 31.6 | 0.0  | 6.9  | 0.0  | 0.0  | 4.5  | 0.0  | 19.3 | 0.0  | 0.0  | 0.1  |
| Cycle Q Clear(g_c), s        | 0.0  | 31.6 | 0.0  | 6.9  | 0.0  | 0.0  | 4.6  | 0.0  | 19.3 | 0.0  | 0.0  | 0.1  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      | 1.00 | 0.00 |      | 0.50 |
| Lane Grp Cap(c), veh/h       | 1    | 999  |      | 550  | 1108 | 1166 | 305  | 0    | 235  | 0    | 0    | 269  |
| V/C Ratio(X)                 | 0.00 | 0.92 |      | 0.41 | 0.39 | 0.39 | 0.19 | 0.00 | 0.90 | 0.00 | 0.00 | 0.01 |
| Avail Cap(c_a), veh/h        | 130  | 1445 |      | 550  | 1108 | 1166 | 401  | 0    | 326  | 0    | 0    | 374  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.00 | 0.89 | 0.00 | 0.86 | 0.86 | 0.86 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 0.0  | 18.1 | 0.0  | 11.0 | 0.0  | 0.0  | 42.0 | 0.0  | 47.9 | 0.0  | 0.0  | 40.1 |
| Incr Delay (d2), s/veh       | 0.0  | 13.0 | 0.0  | 0.4  | 0.9  | 0.9  | 0.3  | 0.0  | 20.7 | 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  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.0  | 11.6 | 0.0  | 3.4  | 0.5  | 0.5  | 2.7  | 0.0  | 11.9 | 0.0  | 0.0  | 0.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 0.0  | 31.1 | 0.0  | 11.4 | 0.9  | 0.9  | 42.3 | 0.0  | 68.7 | 0.0  | 0.0  | 40.1 |
| LnGrp LOS                    | A    | C    |      | B    | A    | A    | D    | A    | E    | A    | A    | D    |
| Approach Vol, veh/h          |      | 915  |      | 1117 |      |      | 270  |      |      |      | 2    |      |
| Approach Delay, s/veh        |      | 31.1 |      | 3.0  |      |      | 62.9 |      |      |      | 40.1 |      |
| Approach LOS                 |      | C    |      | A    |      |      | E    |      |      |      | D    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4    |      | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 26.5 | 48.6 | 44.9 |      | 26.5 | 0.0  | 93.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 30.5 | 17.5 | 58.5 |      | 30.5 | 10.5 | 65.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 21.3 | 8.9  | 33.6 |      | 2.1  | 0.0  | 2.0  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.7  | 0.4  | 6.9  |      | 0.0  | 0.0  | 6.6  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 21.2 |
| HCM 6th LOS        | C    |

Notes

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

# HCM 6th Signalized Intersection Summary

## 8: Marine Dr & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 57   | 923  | 41   | 29   | 846  | 37   | 47   | 20   | 53   | 89   | 21   | 122  |
| Future Volume (veh/h)        | 57   | 923  | 41   | 29   | 846  | 37   | 47   | 20   | 53   | 89   | 21   | 122  |
| 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 |      | 0.98 | 1.00 |      | 0.98 | 0.98 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1560 | 1572 | 1572 | 1572 | 1572 | 1572 | 1572 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 62   | 1003 | 45   | 32   | 920  | 40   | 51   | 22   | 58   | 97   | 23   | 133  |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 3    | 3    | 3    | 3    | 3    | 3    | 4    | 4    | 4    |
| Cap, veh/h                   | 482  | 1046 | 452  | 447  | 975  | 425  | 121  | 117  | 98   | 277  | 28   | 162  |
| Arrive On Green              | 0.65 | 0.71 | 0.71 | 0.30 | 0.33 | 0.33 | 0.04 | 0.07 | 0.07 | 0.11 | 0.14 | 0.14 |
| Sat Flow, veh/h              | 1485 | 2964 | 1280 | 1497 | 2987 | 1300 | 1497 | 1572 | 1311 | 1485 | 198  | 1146 |
| Grp Volume(v), veh/h         | 62   | 1003 | 45   | 32   | 920  | 40   | 51   | 22   | 58   | 97   | 0    | 156  |
| Grp Sat Flow(s),veh/h/ln     | 1485 | 1482 | 1280 | 1497 | 1494 | 1300 | 1497 | 1572 | 1311 | 1485 | 0    | 1345 |
| Q Serve(g_s), s              | 1.9  | 37.0 | 1.3  | 1.8  | 36.0 | 2.6  | 0.0  | 1.6  | 5.1  | 0.0  | 0.0  | 13.5 |
| Cycle Q Clear(g_c), s        | 1.9  | 37.0 | 1.3  | 1.8  | 36.0 | 2.6  | 0.0  | 1.6  | 5.1  | 0.0  | 0.0  | 13.5 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.85 |
| Lane Grp Cap(c), veh/h       | 482  | 1046 | 452  | 447  | 975  | 425  | 121  | 117  | 98   | 277  | 0    | 190  |
| V/C Ratio(X)                 | 0.13 | 0.96 | 0.10 | 0.07 | 0.94 | 0.09 | 0.42 | 0.19 | 0.59 | 0.35 | 0.00 | 0.82 |
| Avail Cap(c_a), veh/h        | 482  | 1111 | 480  | 447  | 996  | 433  | 160  | 472  | 393  | 277  | 0    | 415  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.76 | 0.76 | 0.76 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 14.5 | 16.9 | 11.6 | 30.2 | 39.3 | 28.1 | 55.2 | 52.1 | 53.8 | 46.2 | 0.0  | 50.0 |
| Incr Delay (d2), s/veh       | 0.1  | 16.3 | 0.3  | 0.1  | 18.0 | 0.4  | 4.9  | 0.8  | 5.6  | 0.8  | 0.0  | 8.5  |
| 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(95%),veh/ln     | 1.2  | 12.0 | 0.8  | 1.2  | 21.7 | 1.5  | 3.0  | 1.2  | 3.3  | 4.8  | 0.0  | 8.7  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 14.7 | 33.2 | 12.0 | 30.3 | 57.3 | 28.5 | 60.1 | 52.9 | 59.4 | 46.9 | 0.0  | 58.5 |
| LnGrp LOS                    | B    | C    | B    | C    | E    | C    | E    | D    | E    | D    | A    | E    |
| Approach Vol, veh/h          |      | 1110 |      |      | 992  |      |      | 131  |      |      | 253  |      |
| Approach Delay, s/veh        |      | 31.3 |      |      | 55.3 |      |      | 58.6 |      |      | 54.1 |      |
| Approach LOS                 |      | C    |      |      | E    |      |      | E    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.9  | 13.9 | 40.8 | 47.3 | 9.9  | 22.0 | 44.0 | 44.2 |      |      |      |      |
| 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  | 30.0 | 36.0 | 10.0 | 45.0 | 8.0  | 37.0 | 15.0 | 40.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 12.0 | 7.1  | 3.8  | 39.0 | 2.0  | 15.5 | 3.9  | 38.0 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 0.3  | 0.0  | 3.3  | 0.1  | 0.9  | 0.1  | 1.2  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      | 44.6 |      |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      | D    |      |

HCM 6th TWSC  
 9: Wilbert Ave/Corbet Dr & Kitsap Way (SR 310)

04/29/2024

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      | ↙    | ↑↑   | ↗    | ↙    | ↑↑   |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h       | 15   | 1027 | 3    | 15   | 864  | 8    | 1    | 1    | 7    | 6    | 0    | 49   |
| Future Vol, veh/h        | 15   | 1027 | 3    | 15   | 864  | 8    | 1    | 1    | 7    | 6    | 0    | 49   |
| Conflicting Peds, #/hr   | 3    | 0    | 2    | 2    | 0    | 3    | 2    | 0    | 2    | 3    | 0    | 3    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | 200  | -    | 200  | 50   | -    | -    | -    | -    | -    | -    | -    | -    |
| 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, %        | 4    | 4    | 4    | 3    | 3    | 3    | 22   | 22   | 22   | 0    | 0    | 0    |
| Mvmt Flow                | 16   | 1104 | 3    | 16   | 929  | 9    | 1    | 1    | 8    | 6    | 0    | 53   |

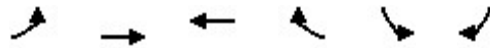
| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |      | Minor2 |      |     |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|-----|
| Conflicting Flow All | 941    | 0 | 0 | 1109   | 0 | 0 | 1638   | 2111 | 557  | 1557   | 2110 | 475 |
| Stage 1              | -      | - | - | -      | - | - | 1138   | 1138 | -    | 969    | 969  | -   |
| Stage 2              | -      | - | - | -      | - | - | 500    | 973  | -    | 588    | 1141 | -   |
| Critical Hdwy        | 4.18   | - | - | 4.16   | - | - | 7.94   | 6.94 | 7.34 | 7.5    | 6.5  | 6.9 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.94   | 5.94 | -    | 6.5    | 5.5  | -   |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.94   | 5.94 | -    | 6.5    | 5.5  | -   |
| Follow-up Hdwy       | 2.24   | - | - | 2.23   | - | - | 3.72   | 4.22 | 3.52 | 3.5    | 4    | 3.3 |
| Pot Cap-1 Maneuver   | 712    | - | - | 620    | - | - | 54     | 39   | 426  | 78     | 52   | 541 |
| Stage 1              | -      | - | - | -      | - | - | 183    | 236  | -    | 276    | 334  | -   |
| Stage 2              | -      | - | - | -      | - | - | 473    | 287  | -    | 467    | 278  | -   |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -    | -      | -    | -   |
| Mov Cap-1 Maneuver   | 710    | - | - | 619    | - | - | 47     | 37   | 424  | 72     | 49   | 539 |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 47     | 37   | -    | 72     | 49   | -   |
| Stage 1              | -      | - | - | -      | - | - | 179    | 230  | -    | 269    | 325  | -   |
| Stage 2              | -      | - | - | -      | - | - | 415    | 279  | -    | 445    | 271  | -   |

| Approach             | EB  |  |  | WB  |  |  | NB   |  |  | SB |  |  |
|----------------------|-----|--|--|-----|--|--|------|--|--|----|--|--|
| HCM Control Delay, s | 0.1 |  |  | 0.2 |  |  | 32.8 |  |  | 19 |  |  |
| HCM LOS              |     |  |  |     |  |  | D    |  |  | C  |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 139   | 710   | -   | -   | 619   | -   | -   | 316   |
| HCM Lane V/C Ratio    | 0.07  | 0.023 | -   | -   | 0.026 | -   | -   | 0.187 |
| HCM Control Delay (s) | 32.8  | 10.2  | -   | -   | 11    | -   | -   | 19    |
| HCM Lane LOS          | D     | B     | -   | -   | B     | -   | -   | C     |
| HCM 95th %tile Q(veh) | 0.2   | 0.1   | -   | -   | 0.1   | -   | -   | 0.7   |

HCM 6th Signalized Intersection Summary  
 10: Kitsap Way (SR 310) & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | WBT  | WBR  | SBL   | SBR  |
|------------------------------|------|------|------|------|-------|------|
| Lane Configurations          | ↔↔   | ↑↑   | ↑↔   |      |       | ↔↔   |
| Traffic Volume (veh/h)       | 525  | 0    | 204  | 8    | 0     | 579  |
| Future Volume (veh/h)        | 525  | 0    | 204  | 8    | 0     | 579  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0     | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      |      | 1.00 | 1.00  | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach        |      | No   | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1572 | 1572 | 0     | 1560 |
| Adj Flow Rate, veh/h         | 583  | 0    | 227  | 9    | 0     | 643  |
| Peak Hour Factor             | 0.90 | 0.90 | 0.90 | 0.90 | 0.90  | 0.90 |
| Percent Heavy Veh, %         | 4    | 4    | 3    | 3    | 0     | 4    |
| Cap, veh/h                   | 1681 | 2803 | 928  | 37   | 0     | 0    |
| Arrive On Green              | 0.58 | 0.00 | 0.63 | 0.63 | 0.00  | 0.00 |
| Sat Flow, veh/h              | 2882 | 3042 | 3008 | 116  | 0     |      |
| Grp Volume(v), veh/h         | 583  | 0    | 115  | 121  | 0.0   |      |
| Grp Sat Flow(s),veh/h/ln     | 1441 | 1482 | 1494 | 1551 |       |      |
| Q Serve(g_s), s              | 12.7 | 0.0  | 4.0  | 4.1  |       |      |
| Cycle Q Clear(g_c), s        | 12.7 | 0.0  | 4.0  | 4.1  |       |      |
| Prop In Lane                 | 1.00 |      |      | 0.07 |       |      |
| Lane Grp Cap(c), veh/h       | 1681 | 2803 | 473  | 491  |       |      |
| V/C Ratio(X)                 | 0.35 | 0.00 | 0.24 | 0.25 |       |      |
| Avail Cap(c_a), veh/h        | 1681 | 2803 | 492  | 511  |       |      |
| HCM Platoon Ratio            | 1.00 | 1.00 | 2.00 | 2.00 |       |      |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 1.00 |       |      |
| Uniform Delay (d), s/veh     | 13.1 | 0.0  | 15.8 | 15.8 |       |      |
| Incr Delay (d2), s/veh       | 0.1  | 0.0  | 0.3  | 0.3  |       |      |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  |       |      |
| %ile BackOfQ(95%),veh/ln     | 7.2  | 0.0  | 2.4  | 2.5  |       |      |
| Unsig. Movement Delay, s/veh |      |      |      |      |       |      |
| LnGrp Delay(d),s/veh         | 13.2 | 0.0  | 16.1 | 16.1 |       |      |
| LnGrp LOS                    | B    | A    | B    | B    |       |      |
| Approach Vol, veh/h          |      | 583  | 236  |      |       |      |
| Approach Delay, s/veh        |      | 13.2 | 16.1 |      |       |      |
| Approach LOS                 |      | B    | B    |      |       |      |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6     |      |
| Phs Duration (G+Y+Rc), s     | 76.5 | 43.5 |      |      | 120.0 |      |
| Change Period (Y+Rc), s      | 6.5  | 5.5  |      |      | 6.5   |      |
| Max Green Setting (Gmax), s  | 34.5 | 39.5 |      |      | 83.5  |      |
| Max Q Clear Time (g_c+I1), s | 14.7 | 6.1  |      |      | 0.0   |      |
| Green Ext Time (p_c), s      | 2.7  | 1.6  |      |      | 0.0   |      |
| <b>Intersection Summary</b>  |      |      |      |      |       |      |
| HCM 6th Ctrl Delay           |      |      | 14.0 |      |       |      |
| HCM 6th LOS                  |      |      | B    |      |       |      |

# HCM 6th Signalized Intersection Summary

## 11: Wycoff Ave & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 4    | 594  | 6    | 15    | 168  | 8    | 2    | 2     | 45   | 10   | 4    | 1    |
| Future Volume (veh/h)        | 4    | 594  | 6    | 15    | 168  | 8    | 2    | 2     | 45   | 10   | 4    | 1    |
| 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 | 0.99 |       | 0.99 | 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       | 1597 | 1597 | 1597 | 1610  | 1610 | 1610 | 1585 | 1585  | 1585 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 4    | 639  | 6    | 16    | 181  | 9    | 2    | 2     | 48   | 11   | 4    | 1    |
| 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, %         | 1    | 1    | 1    | 0     | 0    | 0    | 2    | 2     | 2    | 0    | 0    | 0    |
| Cap, veh/h                   | 1049 | 2517 | 1096 | 753   | 2500 | 124  | 32   | 4     | 62   | 95   | 27   | 5    |
| Arrive On Green              | 0.01 | 1.00 | 1.00 | 0.01  | 0.57 | 0.57 | 0.05 | 0.05  | 0.05 | 0.05 | 0.05 | 0.05 |
| Sat Flow, veh/h              | 1521 | 3035 | 1322 | 1533  | 2963 | 146  | 25   | 79    | 1245 | 890  | 542  | 95   |
| Grp Volume(v), veh/h         | 4    | 639  | 6    | 16    | 93   | 97   | 52   | 0     | 0    | 16   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1322 | 1533  | 1530 | 1580 | 1349 | 0     | 0    | 1527 | 0    | 0    |
| Q Serve(g_s), s              | 0.1  | 0.0  | 0.0  | 0.2   | 3.3  | 3.3  | 1.4  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.1  | 0.0  | 0.0  | 0.2   | 3.3  | 3.3  | 4.6  | 0.0   | 0.0  | 1.2  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.09 | 0.04 |       | 0.92 | 0.69 |      | 0.06 |
| Lane Grp Cap(c), veh/h       | 1049 | 2517 | 1096 | 753   | 1290 | 1333 | 99   | 0     | 0    | 127  | 0    | 0    |
| V/C Ratio(X)                 | 0.00 | 0.25 | 0.01 | 0.02  | 0.07 | 0.07 | 0.53 | 0.00  | 0.00 | 0.13 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1167 | 2517 | 1096 | 836   | 1290 | 1333 | 233  | 0     | 0    | 269  | 0    | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 0.67  | 0.67 | 0.67 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 0.00  | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 1.6  | 0.0  | 0.0  | 1.4   | 4.8  | 4.8  | 56.3 | 0.0   | 0.0  | 54.7 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.2  | 0.0  | 0.0   | 0.1  | 0.1  | 4.3  | 0.0   | 0.0  | 0.4  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.0  | 0.2  | 0.0  | 0.1   | 1.5  | 1.6  | 3.0  | 0.0   | 0.0  | 0.9  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 1.6  | 0.2  | 0.0  | 1.4   | 4.9  | 4.9  | 60.6 | 0.0   | 0.0  | 55.1 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A     | A    | A    | E    | A     | A    | E    | A    | A    |
| Approach Vol, veh/h          |      | 649  |      |       | 206  |      |      | 52    |      |      | 16   |      |
| Approach Delay, s/veh        |      | 0.2  |      |       | 4.6  |      |      | 60.6  |      |      | 55.1 |      |
| Approach LOS                 |      | A    |      |       | A    |      |      | E     |      |      | E    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 10.0 | 6.5  | 103.5 |      | 10.0 | 4.7  | 105.2 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  | 4.0  | 4.0   |      | 4.0  | 4.0  | 4.0   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 18.0 | 9.0  | 81.0  |      | 18.0 | 10.0 | 80.0  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 6.6  | 2.2  | 2.0   |      | 3.2  | 2.1  | 5.3   |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.1  | 0.0  | 5.5   |      | 0.0  | 0.0  | 1.3   |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 5.6   |      |      |      |       |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A     |      |      |      |       |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 12: N Callow Ave & Kitsap Way (SR 310)/6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↖↗   |      | ↖    | ↖↗   |      | ↖    | ↖    |      | ↖    | ↖    |      |
| Traffic Volume (veh/h)       | 8    | 518  | 121  | 88   | 159  | 8    | 32   | 53   | 39   | 21   | 125  | 5    |
| Future Volume (veh/h)        | 8    | 518  | 121  | 88   | 159  | 8    | 32   | 53   | 39   | 21   | 125  | 5    |
| 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 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 9    | 569  | 133  | 97   | 175  | 9    | 35   | 58   | 43   | 23   | 137  | 5    |
| Peak Hour Factor             | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 1    | 1    | 1    | 2    | 2    | 2    | 1    | 1    | 1    |
| Cap, veh/h                   | 885  | 1650 | 384  | 646  | 2112 | 108  | 125  | 100  | 74   | 154  | 167  | 6    |
| Arrive On Green              | 0.03 | 1.00 | 1.00 | 0.02 | 0.24 | 0.24 | 0.03 | 0.12 | 0.12 | 0.02 | 0.11 | 0.11 |
| Sat Flow, veh/h              | 1509 | 2413 | 562  | 1521 | 2938 | 150  | 1509 | 844  | 626  | 1521 | 1531 | 56   |
| Grp Volume(v), veh/h         | 9    | 354  | 348  | 97   | 90   | 94   | 35   | 0    | 101  | 23   | 0    | 142  |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 1469 | 1521 | 1518 | 1570 | 1509 | 0    | 1470 | 1521 | 0    | 1587 |
| Q Serve(g_s), s              | 0.2  | 0.0  | 0.0  | 2.0  | 5.5  | 5.6  | 2.5  | 0.0  | 7.8  | 1.6  | 0.0  | 10.5 |
| Cycle Q Clear(g_c), s        | 0.2  | 0.0  | 0.0  | 2.0  | 5.5  | 5.6  | 2.5  | 0.0  | 7.8  | 1.6  | 0.0  | 10.5 |
| Prop In Lane                 | 1.00 |      | 0.38 | 1.00 |      | 0.10 | 1.00 |      | 0.43 | 1.00 |      | 0.04 |
| Lane Grp Cap(c), veh/h       | 885  | 1030 | 1005 | 646  | 1091 | 1129 | 125  | 0    | 174  | 154  | 0    | 173  |
| V/C Ratio(X)                 | 0.01 | 0.34 | 0.35 | 0.15 | 0.08 | 0.08 | 0.28 | 0.00 | 0.58 | 0.15 | 0.00 | 0.82 |
| Avail Cap(c_a), veh/h        | 992  | 1030 | 1005 | 700  | 1091 | 1129 | 212  | 0    | 319  | 256  | 0    | 344  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 0.33 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.98 | 0.98 | 0.98 | 1.00 | 1.00 | 1.00 | 0.86 | 0.00 | 0.86 | 0.97 | 0.00 | 0.97 |
| Uniform Delay (d), s/veh     | 5.5  | 0.0  | 0.0  | 4.2  | 15.0 | 15.0 | 46.5 | 0.0  | 50.1 | 46.8 | 0.0  | 52.3 |
| Incr Delay (d2), s/veh       | 0.0  | 0.9  | 0.9  | 0.1  | 0.1  | 0.1  | 0.4  | 0.0  | 1.9  | 0.2  | 0.0  | 6.8  |
| 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(95%),veh/lr     | 0.1  | 0.5  | 0.5  | 1.1  | 3.6  | 3.8  | 1.7  | 0.0  | 5.4  | 1.1  | 0.0  | 8.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 5.5  | 0.9  | 0.9  | 4.3  | 15.1 | 15.1 | 46.9 | 0.0  | 52.0 | 47.0 | 0.0  | 59.1 |
| LnGrp LOS                    | A    | A    | A    | A    | B    | B    | D    | A    | D    | D    | A    | E    |
| Approach Vol, veh/h          |      | 711  |      |      | 281  |      |      | 136  |      |      | 165  |      |
| Approach Delay, s/veh        |      | 1.0  |      |      | 11.4 |      |      | 50.7 |      |      | 57.5 |      |
| Approach LOS                 |      | A    |      |      | B    |      |      | D    |      |      | E    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.9  | 18.2 | 9.8  | 86.1 | 7.1  | 17.1 | 5.6  | 90.3 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 10.0 | 26.0 | 10.0 | 58.0 | 10.0 | 26.0 | 10.0 | 58.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 13.6 | 9.8  | 4.0  | 2.0  | 4.5  | 12.5 | 2.2  | 7.6  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.4  | 0.1  | 4.4  | 0.0  | 0.5  | 0.0  | 1.0  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 15.7 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 13: N Montgomery Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 3    | 543  | 43   | 34    | 243  | 1    | 11   | 0     | 10   | 0    | 2    | 1    |
| Future Volume (veh/h)        | 3    | 543  | 43   | 34    | 243  | 1    | 11   | 0     | 10   | 0    | 2    | 1    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.98 | 1.00  |      | 1.00 | 0.98 |       | 0.98 | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1597  | 1597 | 1597 | 1610 | 1610  | 1610 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 3    | 603  | 48   | 38    | 270  | 1    | 12   | 0     | 11   | 0    | 2    | 1    |
| Peak Hour Factor             | 0.90 | 0.90 | 0.90 | 0.90  | 0.90 | 0.90 | 0.90 | 0.90  | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 1     | 1    | 1    | 0    | 0     | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 980  | 2327 | 185  | 764   | 2655 | 10   | 68   | 6     | 26   | 0    | 39   | 20   |
| Arrive On Green              | 0.01 | 1.00 | 1.00 | 0.04  | 0.86 | 0.86 | 0.04 | 0.00  | 0.04 | 0.00 | 0.04 | 0.04 |
| Sat Flow, veh/h              | 1509 | 2820 | 224  | 1521  | 3101 | 11   | 580  | 146   | 665  | 0    | 1006 | 503  |
| Grp Volume(v), veh/h         | 3    | 321  | 330  | 38    | 132  | 139  | 23   | 0     | 0    | 0    | 0    | 3    |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 1539 | 1521  | 1518 | 1595 | 1391 | 0     | 0    | 0    | 0    | 1509 |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 0.4   | 1.6  | 1.6  | 1.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.2  |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 0.0  | 0.4   | 1.6  | 1.6  | 1.9  | 0.0   | 0.0  | 0.0  | 0.0  | 0.2  |
| Prop In Lane                 | 1.00 |      | 0.15 | 1.00  |      | 0.01 | 0.52 |       | 0.48 | 0.00 |      | 0.33 |
| Lane Grp Cap(c), veh/h       | 980  | 1242 | 1269 | 764   | 1299 | 1366 | 100  | 0     | 0    | 0    | 0    | 59   |
| V/C Ratio(X)                 | 0.00 | 0.26 | 0.26 | 0.05  | 0.10 | 0.10 | 0.23 | 0.00  | 0.00 | 0.00 | 0.00 | 0.05 |
| Avail Cap(c_a), veh/h        | 1099 | 1242 | 1269 | 836   | 1299 | 1366 | 367  | 0     | 0    | 0    | 0    | 352  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.93 | 0.93 | 0.93 | 1.00  | 1.00 | 1.00 | 0.99 | 0.00  | 0.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 1.7  | 0.0  | 0.0  | 1.0   | 1.4  | 1.4  | 56.3 | 0.0   | 0.0  | 0.0  | 0.0  | 55.5 |
| Incr Delay (d2), s/veh       | 0.0  | 0.5  | 0.5  | 0.0   | 0.2  | 0.1  | 0.9  | 0.0   | 0.0  | 0.0  | 0.0  | 0.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.0  | 0.3  | 0.3  | 0.1   | 0.7  | 0.7  | 1.3  | 0.0   | 0.0  | 0.0  | 0.0  | 0.2  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 1.7  | 0.5  | 0.5  | 1.0   | 1.5  | 1.5  | 57.1 | 0.0   | 0.0  | 0.0  | 0.0  | 55.8 |
| LnGrp LOS                    | A    | A    | A    | A     | A    | A    | E    | A     | A    | A    | A    | E    |
| Approach Vol, veh/h          |      | 654  |      |       | 309  |      |      | 23    |      |      |      | 3    |
| Approach Delay, s/veh        |      | 0.5  |      |       | 1.4  |      |      | 57.1  |      |      |      | 55.8 |
| Approach LOS                 |      | A    |      |       | A    |      |      | E     |      |      |      | E    |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 8.7  | 8.3  | 103.0 |      | 8.7  | 4.6  | 106.7 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  | 4.0  | 4.0   |      | 4.0  | 4.0  | 4.0   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 28.0 | 10.0 | 70.0  |      | 28.0 | 10.0 | 70.0  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 3.9  | 2.4  | 2.0   |      | 2.2  | 2.0  | 3.6   |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.1  | 0.0  | 3.9   |      | 0.0  | 0.0  | 1.4   |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 2.3   |      |      |      |       |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A     |      |      |      |       |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 14: Naval Ave & 6th St

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)         | 7    | 377  | 153  | 145  | 228  | 9    | 46   | 49   | 46   | 14   | 87   | 7    |
| Future Volume (veh/h)          | 7    | 377  | 153  | 145  | 228  | 9    | 46   | 49   | 46   | 14   | 87   | 7    |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 0.99 | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln         | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1572 | 1572 | 1572 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h           | 7    | 397  | 161  | 153  | 240  | 9    | 48   | 52   | 48   | 15   | 92   | 7    |
| Peak Hour Factor               | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 2    | 2    | 2    | 1    | 1    | 1    | 3    | 3    | 3    | 0    | 0    | 0    |
| Cap, veh/h                     | 546  | 673  | 269  | 457  | 1228 | 46   | 344  | 190  | 155  | 320  | 310  | 23   |
| Arrive On Green                | 0.01 | 0.32 | 0.32 | 0.10 | 0.41 | 0.41 | 0.05 | 0.12 | 0.12 | 0.04 | 0.11 | 0.11 |
| Sat Flow, veh/h                | 1509 | 2090 | 836  | 1521 | 2982 | 111  | 1497 | 1558 | 1272 | 1533 | 2882 | 217  |
| Grp Volume(v), veh/h           | 7    | 284  | 274  | 153  | 122  | 127  | 48   | 50   | 50   | 15   | 48   | 51   |
| Grp Sat Flow(s),veh/h/ln       | 1509 | 1506 | 1420 | 1521 | 1518 | 1576 | 1497 | 1494 | 1336 | 1533 | 1530 | 1570 |
| Q Serve(g_s), s                | 0.1  | 6.8  | 6.9  | 2.6  | 2.2  | 2.2  | 0.0  | 1.3  | 1.5  | 0.0  | 1.2  | 1.3  |
| Cycle Q Clear(g_c), s          | 0.1  | 6.8  | 6.9  | 2.6  | 2.2  | 2.2  | 0.0  | 1.3  | 1.5  | 0.0  | 1.2  | 1.3  |
| Prop In Lane                   | 1.00 |      | 0.59 | 1.00 |      | 0.07 | 1.00 |      | 0.95 | 1.00 |      | 0.14 |
| Lane Grp Cap(c), veh/h         | 546  | 485  | 457  | 457  | 625  | 649  | 344  | 182  | 163  | 320  | 165  | 169  |
| V/C Ratio(X)                   | 0.01 | 0.59 | 0.60 | 0.34 | 0.19 | 0.20 | 0.14 | 0.27 | 0.31 | 0.05 | 0.29 | 0.30 |
| Avail Cap(c_a), veh/h          | 1078 | 1248 | 1177 | 1034 | 1435 | 1490 | 1160 | 890  | 796  | 819  | 554  | 568  |
| HCM Platoon Ratio              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh       | 9.6  | 12.1 | 12.2 | 8.1  | 8.1  | 8.1  | 16.9 | 17.1 | 17.2 | 17.2 | 17.6 | 17.6 |
| Incr Delay (d2), s/veh         | 0.0  | 1.4  | 1.5  | 0.5  | 0.2  | 0.2  | 0.2  | 1.0  | 1.3  | 0.1  | 1.2  | 1.2  |
| 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(95%),veh/lr       | 0.1  | 3.7  | 3.6  | 1.3  | 1.1  | 1.1  | 0.7  | 0.8  | 0.8  | 0.2  | 0.8  | 0.8  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 9.6  | 13.5 | 13.7 | 8.6  | 8.2  | 8.2  | 17.1 | 18.0 | 18.4 | 17.2 | 18.8 | 18.8 |
| LnGrp LOS                      | A    | B    | B    | A    | A    | A    | B    | B    | B    | B    | B    | B    |
| Approach Vol, veh/h            |      | 565  |      |      | 402  |      |      | 148  |      |      | 114  |      |
| Approach Delay, s/veh          |      | 13.6 |      |      | 8.4  |      |      | 17.9 |      |      | 18.6 |      |
| Approach LOS                   |      | B    |      |      | A    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 6.1  | 9.7  | 8.8  | 18.3 | 6.7  | 9.1  | 4.9  | 22.1 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s    | 15.5 | 25.5 | 20.5 | 35.5 | 25.5 | 15.5 | 15.5 | 40.5 |      |      |      |      |
| Max Q Clear Time (g_c+1/2C), s | 12.0 | 3.5  | 4.6  | 8.9  | 2.0  | 3.3  | 2.1  | 4.2  |      |      |      |      |
| Green Ext Time (p_c), s        | 0.0  | 0.6  | 0.5  | 4.7  | 0.1  | 0.4  | 0.0  | 1.9  |      |      |      |      |
| <b>Intersection Summary</b>    |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay             |      |      |      |      |      |      |      |      |      |      | 12.8 |      |
| HCM 6th LOS                    |      |      |      |      |      |      |      |      |      |      | B    |      |

# HCM 6th Signalized Intersection Summary

## 16: Veneta Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔    |      |      | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Volume (veh/h)       | 6    | 366  | 45   | 11   | 338  | 4    | 11   | 3    | 12   | 2    | 4    | 10   |
| Future Volume (veh/h)        | 6    | 366  | 45   | 11   | 338  | 4    | 11   | 3    | 12   | 2    | 4    | 10   |
| 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 | 0.97 |      | 0.98 | 0.97 |      | 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       | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1610 | 1610 | 1610 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 6    | 389  | 48   | 12   | 360  | 4    | 12   | 3    | 13   | 2    | 4    | 11   |
| 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, %         | 2    | 2    | 2    | 2    | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 148  | 1298 | 157  | 162  | 1455 | 16   | 261  | 57   | 102  | 170  | 63   | 140  |
| Arrive On Green              | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Sat Flow, veh/h              | 10   | 2626 | 319  | 28   | 2943 | 32   | 391  | 362  | 652  | 90   | 400  | 898  |
| Grp Volume(v), veh/h         | 236  | 0    | 207  | 197  | 0    | 179  | 28   | 0    | 0    | 17   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1579 | 0    | 1375 | 1567 | 0    | 1436 | 1405 | 0    | 0    | 1388 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 2.3  | 0.0  | 0.0  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.3  | 0.0  | 2.3  | 1.9  | 0.0  | 1.8  | 0.4  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  |
| Prop In Lane                 | 0.03 |      | 0.23 | 0.06 |      | 0.02 | 0.43 |      | 0.46 | 0.12 |      | 0.65 |
| Lane Grp Cap(c), veh/h       | 924  | 0    | 679  | 922  | 0    | 710  | 419  | 0    | 0    | 373  | 0    | 0    |
| V/C Ratio(X)                 | 0.26 | 0.00 | 0.30 | 0.21 | 0.00 | 0.25 | 0.07 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 3519 | 0    | 2962 | 3452 | 0    | 3095 | 1298 | 0    | 0    | 1254 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 3.9  | 0.0  | 3.9  | 3.8  | 0.0  | 3.8  | 9.3  | 0.0  | 0.0  | 9.3  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.5  | 0.0  | 0.9  | 0.4  | 0.0  | 0.7  | 0.2  | 0.0  | 0.0  | 0.2  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.7  | 0.0  | 0.7  | 0.6  | 0.0  | 0.6  | 0.2  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 4.4  | 0.0  | 4.8  | 4.2  | 0.0  | 4.4  | 9.6  | 0.0  | 0.0  | 9.5  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 443  |      |      | 376  |      |      | 28   |      |      | 17   |      |
| Approach Delay, s/veh        |      | 4.6  |      |      | 4.3  |      |      | 9.6  |      |      | 9.5  |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 17.2 |      | 8.5  |      | 17.2 |      | 8.5  |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 55.5 |      | 20.5 |      | 55.5 |      | 20.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 4.3  |      | 2.3  |      | 3.9  |      | 2.4  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 8.4  |      | 0.1  |      | 6.9  |      | 0.2  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      | 4.7  |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      | A    |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 17: Warren Ave (SR 303) & 6th St

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)         | 86   | 212  | 22   | 19   | 114  | 22   | 34   | 462  | 22   | 89   | 450  | 134  |
| Future Volume (veh/h)          | 86   | 212  | 22   | 19   | 114  | 22   | 34   | 462  | 22   | 89   | 450  | 134  |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)            | 0.99 |      | 0.98 | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln         | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h           | 91   | 226  | 23   | 20   | 121  | 23   | 36   | 491  | 23   | 95   | 479  | 143  |
| 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, %           | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 3    | 3    |
| Cap, veh/h                     | 242  | 328  | 33   | 192  | 256  | 47   | 611  | 1790 | 84   | 611  | 1418 | 420  |
| Arrive On Green                | 0.07 | 0.12 | 0.12 | 0.05 | 0.10 | 0.10 | 0.04 | 0.61 | 0.61 | 0.10 | 1.00 | 1.00 |
| Sat Flow, veh/h                | 1509 | 2757 | 278  | 1509 | 2529 | 469  | 1509 | 2929 | 137  | 1497 | 2263 | 671  |
| Grp Volume(v), veh/h           | 91   | 122  | 127  | 20   | 71   | 73   | 36   | 252  | 262  | 95   | 315  | 307  |
| Grp Sat Flow(s),veh/h/ln       | 1509 | 1506 | 1529 | 1509 | 1506 | 1492 | 1509 | 1506 | 1560 | 1497 | 1494 | 1441 |
| Q Serve(g_s), s                | 5.8  | 8.6  | 8.8  | 1.2  | 4.9  | 5.1  | 0.9  | 8.6  | 8.6  | 2.5  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s          | 5.8  | 8.6  | 8.8  | 1.2  | 4.9  | 5.1  | 0.9  | 8.6  | 8.6  | 2.5  | 0.0  | 0.0  |
| Prop In Lane                   | 1.00 |      | 0.18 | 1.00 |      | 0.31 | 1.00 |      | 0.09 | 1.00 |      | 0.47 |
| Lane Grp Cap(c), veh/h         | 242  | 179  | 182  | 192  | 152  | 151  | 611  | 920  | 954  | 611  | 936  | 902  |
| V/C Ratio(X)                   | 0.38 | 0.68 | 0.70 | 0.10 | 0.47 | 0.49 | 0.06 | 0.27 | 0.27 | 0.16 | 0.34 | 0.34 |
| Avail Cap(c_a), veh/h          | 345  | 472  | 480  | 227  | 376  | 373  | 700  | 920  | 954  | 663  | 936  | 902  |
| HCM Platoon Ratio              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(l)             | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 0.83 | 0.83 | 0.83 |
| Uniform Delay (d), s/veh       | 40.1 | 46.5 | 46.5 | 40.0 | 46.6 | 46.7 | 7.0  | 10.0 | 10.0 | 6.7  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh         | 1.2  | 5.4  | 5.6  | 0.2  | 2.2  | 2.4  | 0.0  | 0.7  | 0.7  | 0.1  | 0.8  | 0.9  |
| Initial Q Delay(d3),s/veh      | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln       | 4.1  | 6.3  | 6.5  | 0.9  | 3.5  | 3.6  | 0.5  | 5.2  | 5.4  | 1.3  | 0.4  | 0.4  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 41.3 | 51.9 | 52.2 | 40.2 | 48.8 | 49.1 | 7.0  | 10.7 | 10.7 | 6.8  | 0.8  | 0.9  |
| LnGrp LOS                      | D    | D    | D    | D    | D    | D    | A    | B    | B    | A    | A    | A    |
| Approach Vol, veh/h            |      | 340  |      |      | 164  |      |      | 550  |      |      | 717  |      |
| Approach Delay, s/veh          |      | 49.1 |      |      | 47.9 |      |      | 10.5 |      |      | 1.6  |      |
| Approach LOS                   |      | D    |      |      | D    |      |      | B    |      |      | A    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 10.2 | 71.7 | 10.5 | 17.6 | 8.5  | 73.4 | 12.5 | 15.6 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s    | 39.5 | 39.5 | 8.5  | 34.5 | 10.5 | 38.5 | 15.5 | 27.5 |      |      |      |      |
| Max Q Clear Time (g_c+14.5), s | 10.6 | 10.6 | 3.2  | 10.8 | 2.9  | 2.0  | 7.8  | 7.1  |      |      |      |      |
| Green Ext Time (p_c), s        | 0.1  | 4.0  | 0.0  | 1.8  | 0.0  | 5.4  | 0.1  | 0.7  |      |      |      |      |
| <b>Intersection Summary</b>    |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay             |      |      |      |      |      |      |      |      |      |      | 17.8 |      |
| HCM 6th LOS                    |      |      |      |      |      |      |      |      |      |      | B    |      |

# HCM 6th Signalized Intersection Summary

## 18: Park Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    | ↗    |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 14   | 154  | 167  | 3    | 124  | 2    | 9    | 11   | 3    | 9    | 83   | 24   |
| Future Volume (veh/h)        | 14   | 154  | 167  | 3    | 124  | 2    | 9    | 11   | 3    | 9    | 83   | 24   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.94 | 0.98 |      | 1.00 | 0.97 |      | 0.94 | 0.95 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 16   | 173  | 188  | 3    | 139  | 2    | 10   | 12   | 3    | 10   | 93   | 27   |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 0    | 0    | 0    | 1    | 1    | 1    |
| Cap, veh/h                   | 161  | 580  | 479  | 137  | 588  | 8    | 294  | 263  | 51   | 155  | 336  | 92   |
| Arrive On Green              | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| Sat Flow, veh/h              | 48   | 1523 | 1258 | 9    | 1545 | 22   | 379  | 906  | 175  | 47   | 1156 | 315  |
| Grp Volume(v), veh/h         | 189  | 0    | 188  | 144  | 0    | 0    | 25   | 0    | 0    | 130  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1572 | 0    | 1258 | 1576 | 0    | 0    | 1460 | 0    | 0    | 1518 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 3.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.3  | 0.0  | 3.0  | 1.7  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  | 1.8  | 0.0  | 0.0  |
| Prop In Lane                 | 0.08 |      | 1.00 | 0.02 |      | 0.01 | 0.40 |      | 0.12 | 0.08 |      | 0.21 |
| Lane Grp Cap(c), veh/h       | 741  | 0    | 479  | 734  | 0    | 0    | 608  | 0    | 0    | 583  | 0    | 0    |
| V/C Ratio(X)                 | 0.26 | 0.00 | 0.39 | 0.20 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1876 | 0    | 1401 | 1878 | 0    | 0    | 1769 | 0    | 0    | 1821 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 6.0  | 0.0  | 6.2  | 5.8  | 0.0  | 0.0  | 7.0  | 0.0  | 0.0  | 7.5  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.4  | 0.0  | 1.1  | 0.3  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.4  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.9  | 0.0  | 1.1  | 0.7  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.8  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 6.3  | 0.0  | 7.3  | 6.1  | 0.0  | 0.0  | 7.1  | 0.0  | 0.0  | 7.9  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 377  |      | 144  |      | 25   |      | 130  |      |      |      |      |
| Approach Delay, s/veh        |      | 6.8  |      | 6.1  |      | 7.1  |      | 7.9  |      |      |      |      |
| Approach LOS                 |      | A    |      | A    |      | A    |      | A    |      |      |      |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 12.5 |      | 14.9 |      | 12.5 |      | 14.9 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 30.5 |      | 30.5 |      | 30.5 |      | 30.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.3  |      | 5.0  |      | 3.8  |      | 3.7  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.2  |      | 3.9  |      | 1.4  |      | 1.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 6.9  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

| Intersection              |     |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------|-----|--|--|--|--|--|--|--|--|--|--|--|
| Intersection Delay, s/veh | 8.8 |  |  |  |  |  |  |  |  |  |  |  |
| Intersection LOS          | A   |  |  |  |  |  |  |  |  |  |  |  |

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Vol, veh/h  | 25   | 94   | 51   | 23   | 101  | 8    | 18   | 10   | 9    | 12   | 32   | 14   |
| Future Vol, veh/h   | 25   | 94   | 51   | 23   | 101  | 8    | 18   | 10   | 9    | 12   | 32   | 14   |
| Peak Hour Factor    | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Heavy Vehicles, %   | 4    | 4    | 4    | 2    | 2    | 2    | 5    | 5    | 5    | 3    | 3    | 3    |
| Mvmt Flow           | 30   | 113  | 61   | 28   | 122  | 10   | 22   | 12   | 11   | 14   | 39   | 17   |
| Number of Lanes     | 1    | 1    | 0    | 1    | 1    | 0    | 0    | 1    | 1    | 0    | 1    | 0    |

| Approach                   | EB  | WB  | NB  | SB  |
|----------------------------|-----|-----|-----|-----|
| Opposing Approach          | WB  | EB  | SB  | NB  |
| Opposing Lanes             | 2   | 2   | 1   | 2   |
| Conflicting Approach Left  | SB  | NB  | EB  | WB  |
| Conflicting Lanes Left     | 1   | 2   | 2   | 2   |
| Conflicting Approach Right | NB  | SB  | WB  | EB  |
| Conflicting Lanes Right    | 2   | 1   | 2   | 2   |
| HCM Control Delay          | 8.9 | 8.7 | 8.7 | 9.1 |
| HCM LOS                    | A   | A   | A   | A   |

| Lane                   | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 64%   | 0%    | 100%  | 0%    | 100%  | 0%    | 21%   |
| Vol Thru, %            | 36%   | 0%    | 0%    | 65%   | 0%    | 93%   | 55%   |
| Vol Right, %           | 0%    | 100%  | 0%    | 35%   | 0%    | 7%    | 24%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 28    | 9     | 25    | 145   | 23    | 109   | 58    |
| LT Vol                 | 18    | 0     | 25    | 0     | 23    | 0     | 12    |
| Through Vol            | 10    | 0     | 0     | 94    | 0     | 101   | 32    |
| RT Vol                 | 0     | 9     | 0     | 51    | 0     | 8     | 14    |
| Lane Flow Rate         | 34    | 11    | 30    | 175   | 28    | 131   | 70    |
| Geometry Grp           | 5     | 5     | 5     | 5     | 5     | 5     | 4b    |
| Degree of Util (X)     | 0.055 | 0.015 | 0.046 | 0.232 | 0.043 | 0.182 | 0.105 |
| Departure Headway (Hd) | 5.872 | 4.844 | 5.531 | 4.782 | 5.533 | 4.979 | 5.387 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 610   | 738   | 648   | 751   | 648   | 721   | 665   |
| Service Time           | 3.609 | 2.581 | 3.258 | 2.508 | 3.26  | 2.706 | 3.422 |
| HCM Lane V/C Ratio     | 0.056 | 0.015 | 0.046 | 0.233 | 0.043 | 0.182 | 0.105 |
| HCM Control Delay      | 9     | 7.7   | 8.5   | 9     | 8.5   | 8.8   | 9.1   |
| HCM Lane LOS           | A     | A     | A     | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0.2   | 0     | 0.1   | 0.9   | 0.1   | 0.7   | 0.4   |

HCM 6th Signalized Intersection Summary  
 20: Washington Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 36   | 10   | 22   | 154  | 243  | 109  |
| Future Volume (veh/h)        | 36   | 10   | 22   | 154  | 243  | 109  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 0.99 | 1.00 |      |      | 0.96 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1560 | 1560 | 1409 | 1409 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 41   | 11   | 25   | 175  | 276  | 124  |
| Peak Hour Factor             | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, %         | 4    | 4    | 16   | 16   | 4    | 4    |
| Cap, veh/h                   | 98   | 26   | 452  | 835  | 397  | 179  |
| Arrive On Green              | 0.09 | 0.09 | 0.04 | 0.59 | 0.39 | 0.39 |
| Sat Flow, veh/h              | 1118 | 300  | 1342 | 1409 | 1007 | 452  |
| Grp Volume(v), veh/h         | 53   | 0    | 25   | 175  | 0    | 400  |
| Grp Sat Flow(s),veh/h/ln     | 1445 | 0    | 1342 | 1409 | 0    | 1459 |
| Q Serve(g_s), s              | 1.0  | 0.0  | 0.3  | 1.6  | 0.0  | 6.4  |
| Cycle Q Clear(g_c), s        | 1.0  | 0.0  | 0.3  | 1.6  | 0.0  | 6.4  |
| Prop In Lane                 | 0.77 | 0.21 | 1.00 |      |      | 0.31 |
| Lane Grp Cap(c), veh/h       | 126  | 0    | 452  | 835  | 0    | 576  |
| V/C Ratio(X)                 | 0.42 | 0.00 | 0.06 | 0.21 | 0.00 | 0.69 |
| Avail Cap(c_a), veh/h        | 1310 | 0    | 1141 | 2780 | 0    | 1841 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 12.2 | 0.0  | 4.8  | 2.7  | 0.0  | 7.1  |
| Incr Delay (d2), s/veh       | 1.6  | 0.0  | 0.1  | 0.1  | 0.0  | 1.1  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.5  | 0.0  | 0.1  | 0.2  | 0.0  | 2.4  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 13.8 | 0.0  | 4.9  | 2.8  | 0.0  | 8.2  |
| LnGrp LOS                    | B    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          | 53   |      |      | 200  | 400  |      |
| Approach Delay, s/veh        | 13.8 |      |      | 3.0  | 8.2  |      |
| Approach LOS                 | B    |      |      | A    | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 21.2 |      | 7.0  | 5.6  | 15.6 |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  | 4.5  | 4.5  |
| Max Green Setting (Gmax), s  |      | 55.5 |      | 25.5 | 15.5 | 35.5 |
| Max Q Clear Time (g_c+I1), s |      | 3.6  |      | 3.0  | 2.3  | 8.4  |
| Green Ext Time (p_c), s      |      | 1.0  |      | 0.1  | 0.0  | 2.4  |

Intersection Summary

|                    |     |
|--------------------|-----|
| HCM 6th Ctrl Delay | 7.1 |
| HCM 6th LOS        | A   |

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 21: Warren Ave/Warren Ave (SR 303) & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔↔   |      |      | ↑    | ↗    |      | ↔    |      |      | ↖    | ↗    |
| Traffic Volume (veh/h)       | 537  | 270  | 0    | 0    | 174  | 24   | 0    | 1    | 1    | 82   | 4    | 363  |
| Future Volume (veh/h)        | 537  | 270  | 0    | 0    | 174  | 24   | 0    | 1    | 1    | 82   | 4    | 363  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00 |      | 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       | 1585 | 1585 | 1585 | 0    | 1522 | 1522 | 1610 | 1610 | 1610 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 559  | 281  | 0    | 0    | 181  | 25   | 0    | 1    | 1    | 85   | 4    | 378  |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 0    | 7    | 7    | 0    | 0    | 0    | 5    | 5    | 5    |
| Cap, veh/h                   | 760  | 758  | 0    | 0    | 205  | 170  | 0    | 13   | 13   | 288  | 14   | 927  |
| Arrive On Green              | 0.50 | 0.50 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.02 | 0.02 | 0.20 | 0.20 | 0.20 |
| Sat Flow, veh/h              | 1509 | 1585 | 0    | 0    | 1522 | 1261 | 0    | 732  | 732  | 1410 | 66   | 1308 |
| Grp Volume(v), veh/h         | 559  | 281  | 0    | 0    | 181  | 25   | 0    | 0    | 2    | 89   | 0    | 378  |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 0    | 0    | 1522 | 1261 | 0    | 0    | 1463 | 1477 | 0    | 1308 |
| Q Serve(g_s), s              | 41.5 | 16.2 | 0.0  | 0.0  | 16.6 | 2.5  | 0.0  | 0.0  | 0.2  | 7.2  | 0.0  | 16.9 |
| Cycle Q Clear(g_c), s        | 41.5 | 16.2 | 0.0  | 0.0  | 16.6 | 2.5  | 0.0  | 0.0  | 0.2  | 7.2  | 0.0  | 16.9 |
| Prop In Lane                 | 1.00 |      | 0.00 | 0.00 |      | 1.00 | 0.00 |      | 0.50 | 0.96 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 760  | 758  | 0    | 0    | 205  | 170  | 0    | 0    | 25   | 302  | 0    | 927  |
| V/C Ratio(X)                 | 0.74 | 0.37 | 0.00 | 0.00 | 0.88 | 0.15 | 0.00 | 0.00 | 0.08 | 0.30 | 0.00 | 0.41 |
| Avail Cap(c_a), veh/h        | 760  | 758  | 0    | 0    | 225  | 187  | 0    | 0    | 330  | 302  | 0    | 927  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.95 | 0.00 | 0.95 |
| Uniform Delay (d), s/veh     | 27.8 | 21.5 | 0.0  | 0.0  | 60.4 | 54.3 | 0.0  | 0.0  | 68.7 | 47.8 | 0.0  | 8.5  |
| Incr Delay (d2), s/veh       | 4.6  | 0.6  | 0.0  | 0.0  | 38.5 | 1.8  | 0.0  | 0.0  | 1.9  | 1.4  | 0.0  | 0.8  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 22.5 | 10.0 | 0.0  | 0.0  | 13.5 | 1.6  | 0.0  | 0.0  | 0.2  | 5.1  | 0.0  | 20.0 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 32.4 | 22.2 | 0.0  | 0.0  | 98.9 | 56.1 | 0.0  | 0.0  | 70.6 | 49.3 | 0.0  | 9.3  |
| LnGrp LOS                    | C    | C    | A    | A    | F    | E    | A    | A    | E    | D    | A    | A    |
| Approach Vol, veh/h          |      | 840  |      |      | 206  |      |      | 2    |      |      |      | 467  |
| Approach Delay, s/veh        |      | 29.0 |      |      | 93.7 |      |      | 70.6 |      |      |      | 16.9 |
| Approach LOS                 |      | C    |      |      | F    |      |      | E    |      |      |      | B    |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 7.4  |      | 76.5 |      | 34.0 |      | 24.1 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  |      | 5.0  |      | 5.0  |      | 5.0  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 32.0 |      | 40.0 |      | 29.0 |      | 21.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.2  |      | 43.5 |      | 18.9 |      | 18.6 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.0  |      | 0.0  |      | 3.1  |      | 0.3  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      | 34.1 |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      | C    |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 22: Warren Ave (SR 303) & 11th St

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           | ↔↔   | ↔    |      |      | ↕↔   |      | ↔    | ↕↔   |      | ↔    | ↕↕   | ↔    |
| Traffic Volume (veh/h)        | 391  | 187  | 23   | 0    | 203  | 42   | 11   | 548  | 10   | 84   | 673  | 414  |
| Future Volume (veh/h)         | 391  | 187  | 23   | 0    | 203  | 42   | 11   | 548  | 10   | 84   | 673  | 414  |
| 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 |      | 0.99 | 1.00 |      | 1.00 | 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   |      | No   |      |
| Adj Sat Flow, veh/h/ln        | 1522 | 1522 | 1522 | 0    | 1560 | 1560 | 1572 | 1572 | 1572 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h          | 439  | 210  | 26   | 0    | 228  | 47   | 12   | 616  | 11   | 94   | 756  | 465  |
| Peak Hour Factor              | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %          | 7    | 7    | 7    | 0    | 4    | 4    | 3    | 3    | 3    | 3    | 3    | 3    |
| Cap, veh/h                    | 482  | 480  | 59   | 0    | 320  | 65   | 283  | 1286 | 23   | 332  | 1383 | 836  |
| Arrive On Green               | 0.29 | 0.60 | 0.60 | 0.00 | 0.13 | 0.13 | 0.01 | 0.14 | 0.14 | 0.10 | 0.93 | 0.93 |
| Sat Flow, veh/h               | 2812 | 1328 | 164  | 0    | 2529 | 496  | 1497 | 3003 | 54   | 1497 | 2987 | 1313 |
| Grp Volume(v), veh/h          | 439  | 0    | 236  | 0    | 136  | 139  | 12   | 306  | 321  | 94   | 756  | 465  |
| Grp Sat Flow(s),veh/h/ln      | 1406 | 0    | 1492 | 0    | 1482 | 1465 | 1497 | 1494 | 1563 | 1497 | 1494 | 1313 |
| Q Serve(g_s), s               | 16.6 | 0.0  | 9.4  | 0.0  | 9.7  | 10.0 | 0.5  | 20.8 | 20.8 | 3.9  | 4.2  | 6.7  |
| Cycle Q Clear(g_c), s         | 16.6 | 0.0  | 9.4  | 0.0  | 9.7  | 10.0 | 0.5  | 20.8 | 20.8 | 3.9  | 4.2  | 6.7  |
| Prop In Lane                  | 1.00 |      | 0.11 | 0.00 |      | 0.34 | 1.00 |      | 0.03 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 482  | 0    | 539  | 0    | 194  | 192  | 283  | 640  | 669  | 332  | 1383 | 836  |
| V/C Ratio(X)                  | 0.91 | 0.00 | 0.44 | 0.00 | 0.70 | 0.73 | 0.04 | 0.48 | 0.48 | 0.28 | 0.55 | 0.56 |
| Avail Cap(c_a), veh/h         | 499  | 0    | 739  | 0    | 397  | 393  | 360  | 640  | 669  | 371  | 1383 | 836  |
| HCM Platoon Ratio             | 1.67 | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 | 0.33 | 0.33 | 0.33 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(l)            | 1.00 | 0.00 | 1.00 | 0.00 | 0.99 | 0.99 | 0.96 | 0.96 | 0.96 | 0.66 | 0.66 | 0.66 |
| Uniform Delay (d), s/veh      | 38.4 | 0.0  | 15.8 | 0.0  | 45.8 | 45.9 | 17.3 | 35.9 | 35.9 | 17.0 | 2.3  | 1.2  |
| Incr Delay (d2), s/veh        | 21.2 | 0.0  | 0.6  | 0.0  | 4.5  | 5.1  | 0.1  | 2.5  | 2.4  | 0.4  | 1.0  | 1.8  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln      | 0.6  | 0.0  | 5.0  | 0.0  | 6.8  | 7.0  | 0.3  | 13.5 | 14.0 | 2.3  | 1.7  | 20.6 |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 59.6 | 0.0  | 16.4 | 0.0  | 50.3 | 51.0 | 17.3 | 38.4 | 38.3 | 17.4 | 3.4  | 2.9  |
| LnGrp LOS                     | E    | A    | B    | A    | D    | D    | B    | D    | D    | B    | A    | A    |
| Approach Vol, veh/h           |      | 675  |      |      | 275  |      |      | 639  |      |      | 1315 |      |
| Approach Delay, s/veh         |      | 44.5 |      |      | 50.7 |      |      | 37.9 |      |      | 4.2  |      |
| Approach LOS                  |      | D    |      |      | D    |      |      | D    |      |      | A    |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 1.2  | 52.6 |      | 46.2 | 7.3  | 56.4 | 25.4 | 20.9 |      |      |      |      |
| Change Period (Y+Rc), s       | 5.5  | 5.5  |      | 6.5  | 5.5  | 5.5  | 6.5  | *6.5 |      |      |      |      |
| Max Green Setting (Gmax), s   | 5    | 29.5 |      | 54.5 | 7.5  | 30.5 | 19.5 | *30  |      |      |      |      |
| Max Q Clear Time (g_c+1/3), s | 5    | 22.8 |      | 11.4 | 2.5  | 8.7  | 18.6 | 12.0 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.1  | 2.4  |      | 1.5  | 0.0  | 9.0  | 0.3  | 1.4  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 25.4 |
| HCM 6th LOS        | C    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 23: Warren Ave (SR 303) & 13th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    | ↕    |
| Traffic Volume (veh/h)       | 170  | 14   | 19   | 2    | 7    | 1    | 0    | 985  | 1    | 0    | 1118 | 150  |
| Future Volume (veh/h)        | 170  | 14   | 19   | 2    | 7    | 1    | 0    | 985  | 1    | 0    | 1118 | 150  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.98 |      | 0.97 | 1.00 |      | 0.98 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1535 | 1535 | 1535 | 1610 | 1610 | 1610 | 0    | 1547 | 1547 | 0    | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 179  | 15   | 20   | 2    | 7    | 1    | 0    | 1037 | 1    | 0    | 1177 | 158  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 6    | 6    | 6    | 0    | 0    | 0    | 0    | 5    | 5    | 0    | 3    | 3    |
| Cap, veh/h                   | 266  | 17   | 23   | 76   | 220  | 29   | 0    | 2215 | 2    | 0    | 1946 | 260  |
| Arrive On Green              | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.00 | 1.00 | 1.00 | 0.00 | 0.24 | 0.24 |
| Sat Flow, veh/h              | 1126 | 94   | 126  | 200  | 1203 | 156  | 0    | 3091 | 3    | 0    | 2726 | 354  |
| Grp Volume(v), veh/h         | 214  | 0    | 0    | 10   | 0    | 0    | 0    | 506  | 532  | 0    | 663  | 672  |
| Grp Sat Flow(s),veh/h/ln     | 1346 | 0    | 0    | 1558 | 0    | 0    | 0    | 1470 | 1547 | 0    | 1494 | 1507 |
| Q Serve(g_s), s              | 16.4 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 43.3 | 43.6 |
| Cycle Q Clear(g_c), s        | 17.0 | 0.0  | 0.0  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 43.3 | 43.6 |
| Prop In Lane                 | 0.84 |      | 0.09 | 0.20 |      | 0.10 | 0.00 |      | 0.00 | 0.00 |      | 0.23 |
| Lane Grp Cap(c), veh/h       | 307  | 0    | 0    | 325  | 0    | 0    | 0    | 1080 | 1137 | 0    | 1098 | 1108 |
| V/C Ratio(X)                 | 0.70 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.47 | 0.47 | 0.00 | 0.60 | 0.61 |
| Avail Cap(c_a), veh/h        | 458  | 0    | 0    | 497  | 0    | 0    | 0    | 1080 | 1137 | 0    | 1098 | 1108 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 0.33 | 0.33 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.67 | 0.00 | 0.65 | 0.65 |
| Uniform Delay (d), s/veh     | 43.6 | 0.0  | 0.0  | 36.9 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 27.4 | 27.5 |
| Incr Delay (d2), s/veh       | 3.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 1.0  | 0.9  | 0.0  | 1.6  | 1.6  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ft     | 0.0  | 0.0  | 0.0  | 0.4  | 0.0  | 0.0  | 0.0  | 0.5  | 0.5  | 0.0  | 23.3 | 23.6 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 47.1 | 0.0  | 0.0  | 37.0 | 0.0  | 0.0  | 0.0  | 1.0  | 0.9  | 0.0  | 29.0 | 29.2 |
| LnGrp LOS                    | D    | A    | A    | D    | A    | A    | A    | A    | A    | A    | C    | C    |
| Approach Vol, veh/h          |      | 214  |      |      | 10   |      |      | 1038 |      |      | 1335 |      |
| Approach Delay, s/veh        |      | 47.1 |      |      | 37.0 |      |      | 1.0  |      |      | 29.1 |      |
| Approach LOS                 |      | D    |      |      | D    |      |      | A    |      |      | C    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 85.4 |      | 24.6 |      | 85.4 |      | 24.6 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 68.5 |      | 32.5 |      | 68.5 |      | 32.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.0  |      | 19.0 |      | 45.6 |      | 2.6  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 14.1 |      | 1.2  |      | 18.5 |      | 0.0  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 19.4 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 24: Warren Ave (SR 303) & 16th St

04/29/2024



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR   |
|------------------------------|------|------|------|------|------|-------|
| Lane Configurations          | ↖↖   |      | ↖    | ↑↑   | ↑↑   | ↘     |
| Traffic Volume (veh/h)       | 15   | 11   | 104  | 1064 | 1264 | 170   |
| Future Volume (veh/h)        | 15   | 11   | 104  | 1064 | 1264 | 170   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00  |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  |
| Work Zone On Approach        | No   |      |      | No   | No   |       |
| Adj Sat Flow, veh/h/ln       | 1422 | 1422 | 1547 | 1547 | 1572 | 1572  |
| Adj Flow Rate, veh/h         | 14   | 15   | 118  | 1209 | 1436 | 0     |
| Peak Hour Factor             | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88  |
| Percent Heavy Veh, %         | 15   | 15   | 5    | 5    | 3    | 3     |
| Cap, veh/h                   | 43   | 39   | 140  | 2605 | 2241 |       |
| Arrive On Green              | 0.03 | 0.03 | 0.13 | 1.00 | 0.75 | 0.00  |
| Sat Flow, veh/h              | 1354 | 1205 | 1474 | 3017 | 3066 | 1332  |
| Grp Volume(v), veh/h         | 14   | 15   | 118  | 1209 | 1436 | 0     |
| Grp Sat Flow(s),veh/h/ln     | 1354 | 1205 | 1474 | 1470 | 1494 | 1332  |
| Q Serve(g_s), s              | 1.1  | 1.3  | 8.6  | 0.0  | 25.4 | 0.0   |
| Cycle Q Clear(g_c), s        | 1.1  | 1.3  | 8.6  | 0.0  | 25.4 | 0.0   |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 1.00  |
| Lane Grp Cap(c), veh/h       | 43   | 39   | 140  | 2605 | 2241 |       |
| V/C Ratio(X)                 | 0.32 | 0.39 | 0.84 | 0.46 | 0.64 |       |
| Avail Cap(c_a), veh/h        | 326  | 290  | 208  | 2605 | 2241 |       |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.33 | 1.33 | 1.00 | 1.00  |
| Upstream Filter(l)           | 1.00 | 1.00 | 0.83 | 0.83 | 1.00 | 0.00  |
| Uniform Delay (d), s/veh     | 52.1 | 52.2 | 47.2 | 0.0  | 6.6  | 0.0   |
| Incr Delay (d2), s/veh       | 5.1  | 7.5  | 16.7 | 0.5  | 1.4  | 0.0   |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| %ile BackOfQ(95%),veh/lr     | 0.8  | 0.9  | 6.6  | 0.3  | 11.3 | 0.0   |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |
| LnGrp Delay(d),s/veh         | 57.1 | 59.7 | 63.9 | 0.5  | 8.0  | 0.0   |
| LnGrp LOS                    | E    | E    | E    | A    | A    |       |
| Approach Vol, veh/h          | 29   |      |      | 1327 | 1436 |       |
| Approach Delay, s/veh        | 58.5 |      |      | 6.1  | 8.0  |       |
| Approach LOS                 | E    |      |      | A    | A    |       |
| Timer - Assigned Phs         |      | 2    | 3    | 4    |      | 8     |
| Phs Duration (G+Y+Rc), s     |      | 8.0  | 15.0 | 87.0 |      | 102.0 |
| Change Period (Y+Rc), s      |      | 4.5  | 4.5  | 4.5  |      | 4.5   |
| Max Green Setting (Gmax), s  |      | 26.5 | 15.5 | 54.5 |      | 74.5  |
| Max Q Clear Time (g_c+I1), s |      | 3.3  | 10.6 | 27.4 |      | 2.0   |
| Green Ext Time (p_c), s      |      | 0.1  | 0.1  | 17.1 |      | 20.4  |

### Intersection Summary

|                    |     |
|--------------------|-----|
| HCM 6th Ctrl Delay | 7.7 |
| HCM 6th LOS        | A   |

### Notes

User approved volume balancing among the lanes for turning movement.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
 25: Wheaton Way (SR 303) & Sheridan Rd

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 22   | 31   | 137  | 134  | 24   | 79   | 71   | 768  | 100  | 81   | 979  | 19   |
| Future Volume (veh/h)        | 22   | 31   | 137  | 134  | 24   | 79   | 71   | 768  | 100  | 81   | 979  | 19   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.97 |      | 0.99 | 1.00 |      | 0.99 | 1.00 |      | 0.99 | 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       | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1535 | 1535 | 1535 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 24   | 34   | 6    | 146  | 26   | 13   | 77   | 835  | 45   | 88   | 1064 | 20   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 6    | 6    | 6    | 3    | 3    | 3    |
| Cap, veh/h                   | 187  | 85   | 71   | 253  | 182  | 152  | 489  | 961  | 424  | 554  | 1201 | 23   |
| Arrive On Green              | 0.04 | 0.05 | 0.05 | 0.10 | 0.11 | 0.11 | 0.30 | 0.33 | 0.33 | 0.37 | 0.40 | 0.40 |
| Sat Flow, veh/h              | 1509 | 1585 | 1336 | 1509 | 1585 | 1326 | 1462 | 2916 | 1287 | 1497 | 2999 | 56   |
| Grp Volume(v), veh/h         | 24   | 34   | 6    | 146  | 26   | 13   | 77   | 835  | 45   | 88   | 530  | 554  |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1585 | 1336 | 1509 | 1585 | 1326 | 1462 | 1458 | 1287 | 1497 | 1494 | 1562 |
| Q Serve(g_s), s              | 2.0  | 2.9  | 0.4  | 12.4 | 2.1  | 0.6  | 0.3  | 37.7 | 2.5  | 5.5  | 46.1 | 46.1 |
| Cycle Q Clear(g_c), s        | 2.0  | 2.9  | 0.4  | 12.4 | 2.1  | 0.6  | 0.3  | 37.7 | 2.5  | 5.5  | 46.1 | 46.1 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.04 |
| Lane Grp Cap(c), veh/h       | 187  | 85   | 71   | 253  | 182  | 152  | 489  | 961  | 424  | 554  | 598  | 626  |
| V/C Ratio(X)                 | 0.13 | 0.40 | 0.08 | 0.58 | 0.14 | 0.09 | 0.16 | 0.87 | 0.11 | 0.16 | 0.89 | 0.89 |
| Avail Cap(c_a), veh/h        | 306  | 249  | 210  | 301  | 272  | 227  | 489  | 1312 | 579  | 554  | 768  | 803  |
| 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 | 0.81 | 0.81 | 0.81 |
| Uniform Delay (d), s/veh     | 58.1 | 64.1 | 23.3 | 53.3 | 55.8 | 13.9 | 34.4 | 44.1 | 17.8 | 29.5 | 39.0 | 39.0 |
| Incr Delay (d2), s/veh       | 0.3  | 3.1  | 0.5  | 2.1  | 0.4  | 0.2  | 0.1  | 10.5 | 0.5  | 0.1  | 14.7 | 14.2 |
| 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(95%),veh/ln     | 1.5  | 2.3  | 0.4  | 8.6  | 1.5  | 0.8  | 3.4  | 21.3 | 2.0  | 3.7  | 25.7 | 26.6 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 58.4 | 67.2 | 23.8 | 55.3 | 56.2 | 14.2 | 34.5 | 54.6 | 18.3 | 29.6 | 53.7 | 53.2 |
| LnGrp LOS                    | E    | E    | C    | E    | E    | B    | C    | D    | B    | C    | D    | D    |
| Approach Vol, veh/h          |      | 64   |      |      | 185  |      |      | 957  |      |      | 1172 |      |
| Approach Delay, s/veh        |      | 59.8 |      |      | 52.6 |      |      | 51.3 |      |      | 51.6 |      |
| Approach LOS                 |      | E    |      |      | D    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 56.8 | 51.1 | 19.6 | 12.5 | 46.9 | 61.1 | 11.0 | 21.0 |      |      |      |      |
| Change Period (Y+Rc), s      | 5.0  | 5.0  | 5.0  | 5.0  | 5.0  | 5.0  | 5.0  | 5.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 63.0 | 63.0 | 19.0 | 22.0 | 7.0  | 72.0 | 17.0 | 24.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 39.7 | 39.7 | 14.4 | 4.9  | 2.3  | 48.1 | 4.0  | 4.1  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 6.5  | 0.1  | 0.1  | 0.1  | 7.9  | 0.0  | 0.1  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      | 51.8 |      |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      | D    |      |

HCM 6th Signalized Intersection Summary  
 26: Wheaton Way (SR 303) & Sylvan Way

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          |       |      |      |       |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 71    | 53   | 118  | 86    | 49   | 85   | 42   | 782  | 68   | 55   | 870  | 21   |
| Future Volume (veh/h)        | 71    | 53   | 118  | 86    | 49   | 85   | 42   | 782  | 68   | 55   | 870  | 21   |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 0.99 | 1.00  |      | 0.99 | 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       | 1547  | 1547 | 1547 | 1585  | 1585 | 1585 | 1560 | 1560 | 1560 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 78    | 58   | 130  | 95    | 54   | 93   | 46   | 859  | 75   | 60   | 956  | 23   |
| Peak Hour Factor             | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 5     | 5    | 5    | 2     | 2    | 2    | 4    | 4    | 4    | 3    | 3    | 3    |
| Cap, veh/h                   | 93    | 185  | 155  | 97    | 191  | 160  | 417  | 1880 | 837  | 487  | 1900 | 46   |
| Arrive On Green              | 0.06  | 0.12 | 0.12 | 0.06  | 0.12 | 0.12 | 0.07 | 1.00 | 1.00 | 0.05 | 0.85 | 0.85 |
| Sat Flow, veh/h              | 1474  | 1547 | 1298 | 1509  | 1585 | 1330 | 1485 | 2964 | 1320 | 1497 | 2981 | 72   |
| Grp Volume(v), veh/h         | 78    | 58   | 130  | 95    | 54   | 93   | 46   | 859  | 75   | 60   | 479  | 500  |
| Grp Sat Flow(s),veh/h/ln     | 1474  | 1547 | 1298 | 1509  | 1585 | 1330 | 1485 | 1482 | 1320 | 1497 | 1494 | 1559 |
| Q Serve(g_s), s              | 7.3   | 4.8  | 13.7 | 8.8   | 4.3  | 9.3  | 1.5  | 0.0  | 0.0  | 1.9  | 11.9 | 11.9 |
| Cycle Q Clear(g_c), s        | 7.3   | 4.8  | 13.7 | 8.8   | 4.3  | 9.3  | 1.5  | 0.0  | 0.0  | 1.9  | 11.9 | 11.9 |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.05 |
| Lane Grp Cap(c), veh/h       | 93    | 185  | 155  | 97    | 191  | 160  | 417  | 1880 | 837  | 487  | 952  | 994  |
| V/C Ratio(X)                 | 0.83  | 0.31 | 0.84 | 0.98  | 0.28 | 0.58 | 0.11 | 0.46 | 0.09 | 0.12 | 0.50 | 0.50 |
| Avail Cap(c_a), veh/h        | 95    | 365  | 306  | 97    | 374  | 313  | 459  | 1880 | 837  | 525  | 952  | 994  |
| HCM Platoon Ratio            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.33 | 1.33 | 1.33 |
| Upstream Filter(l)           | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 0.86 | 0.86 | 0.86 | 0.89 | 0.89 | 0.89 |
| Uniform Delay (d), s/veh     | 64.8  | 56.4 | 60.3 | 65.4  | 56.0 | 58.2 | 8.1  | 0.0  | 0.0  | 7.7  | 4.8  | 4.8  |
| Incr Delay (d2), s/veh       | 44.1  | 1.0  | 11.1 | 84.3  | 0.8  | 3.3  | 0.1  | 0.7  | 0.2  | 0.1  | 1.7  | 1.6  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 7.1   | 3.5  | 8.7  | 9.6   | 3.3  | 5.9  | 0.8  | 0.3  | 0.1  | 1.1  | 5.5  | 5.7  |
| Unsig. Movement Delay, s/veh |       |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 109.0 | 57.3 | 71.4 | 149.7 | 56.8 | 61.5 | 8.2  | 0.7  | 0.2  | 7.8  | 6.5  | 6.4  |
| LnGrp LOS                    | F     | E    | E    | F     | E    | E    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |       | 266  |      |       | 242  |      |      | 980  |      |      | 1039 |      |
| Approach Delay, s/veh        |       | 79.3 |      |       | 95.1 |      |      | 1.0  |      |      | 6.5  |      |
| Approach LOS                 |       | E    |      |       | F    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4     | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 30.4  | 93.8 | 14.0 | 21.8  | 10.0 | 94.2 | 13.9 | 21.9 |      |      |      |      |
| 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  | 9.0   | 69.0 | 9.0  | 33.0  | 9.0  | 69.0 | 9.0  | 33.0 |      |      |      |      |
| Max Q Clear Time (g_c+13), s | 13.9  | 2.0  | 10.8 | 15.7  | 3.5  | 13.9 | 9.3  | 11.3 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0   | 8.1  | 0.0  | 0.7   | 0.0  | 8.1  | 0.0  | 0.5  |      |      |      |      |
| <b>Intersection Summary</b>  |       |      |      |       |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |       |      |      |       |      |      |      |      |      |      | 20.5 |      |
| HCM 6th LOS                  |       |      |      |       |      |      |      |      |      |      | C    |      |

HCM 6th Signalized Intersection Summary  
 27: Wheaton Way (SR 303) & Private Drwy/Hollis St

04/29/2024



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕     |      | ↙    | ↘    |       | ↙    | ↘    |      | ↙    | ↘    |      |
| Traffic Volume (veh/h)       | 0    | 0     | 0    | 11   | 0    | 12    | 0    | 864  | 20   | 11   | 946  | 0    |
| Future Volume (veh/h)        | 0    | 0     | 0    | 11   | 0    | 12    | 0    | 864  | 20   | 11   | 946  | 0    |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 1.00 | 0.97 |      | 0.99  | 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       | 1610 | 1610  | 1610 | 1572 | 1572 | 1572  | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 0    | 0     | 0    | 11   | 0    | 12    | 0    | 891  | 21   | 11   | 975  | 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    | 0     | 0    | 3    | 3    | 3     | 1    | 1    | 1    | 1    | 1    | 1    |
| Cap, veh/h                   | 0    | 52    | 0    | 99   | 0    | 43    | 544  | 2563 | 60   | 596  | 2720 | 0    |
| Arrive On Green              | 0.00 | 0.00  | 0.00 | 0.03 | 0.00 | 0.03  | 0.00 | 1.00 | 1.00 | 0.01 | 0.90 | 0.00 |
| Sat Flow, veh/h              | 0    | 1610  | 0    | 1456 | 0    | 1314  | 1521 | 3031 | 71   | 1521 | 3115 | 0    |
| Grp Volume(v), veh/h         | 0    | 0     | 0    | 11   | 0    | 12    | 0    | 446  | 466  | 11   | 975  | 0    |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1610  | 0    | 1456 | 0    | 1314  | 1521 | 1518 | 1585 | 1521 | 1518 | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0   | 0.0  | 1.0  | 0.0  | 1.2   | 0.0  | 0.0  | 0.0  | 0.1  | 6.9  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0   | 0.0  | 1.0  | 0.0  | 1.2   | 0.0  | 0.0  | 0.0  | 0.1  | 6.9  | 0.0  |
| Prop In Lane                 | 0.00 |       | 0.00 | 1.00 |      | 1.00  | 1.00 |      | 0.05 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 0    | 52    | 0    | 99   | 0    | 43    | 544  | 1283 | 1340 | 596  | 2720 | 0    |
| V/C Ratio(X)                 | 0.00 | 0.00  | 0.00 | 0.11 | 0.00 | 0.28  | 0.00 | 0.35 | 0.35 | 0.02 | 0.36 | 0.00 |
| Avail Cap(c_a), veh/h        | 0    | 288   | 0    | 311  | 0    | 235   | 641  | 1283 | 1340 | 671  | 2720 | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.00 | 0.00  | 0.00 | 1.00 | 0.00 | 1.00  | 0.00 | 0.91 | 0.91 | 0.86 | 0.86 | 0.00 |
| Uniform Delay (d), s/veh     | 0.0  | 0.0   | 0.0  | 66.0 | 0.0  | 66.1  | 0.0  | 0.0  | 0.0  | 1.1  | 1.1  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.0   | 0.0  | 0.7  | 0.0  | 5.0   | 0.0  | 0.7  | 0.7  | 0.0  | 0.3  | 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(95%),veh/lr     | 0.0  | 0.0   | 0.0  | 0.7  | 0.0  | 0.9   | 0.0  | 0.4  | 0.4  | 0.0  | 1.7  | 0.0  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 0.0  | 0.0   | 0.0  | 66.7 | 0.0  | 71.2  | 0.0  | 0.7  | 0.7  | 1.1  | 1.4  | 0.0  |
| LnGrp LOS                    | A    | A     | A    | E    | A    | E     | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 0     |      |      | 23   |       |      | 912  |      |      | 986  |      |
| Approach Delay, s/veh        |      | 0.0   |      |      | 69.1 |       |      | 0.7  |      |      | 1.4  |      |
| Approach LOS                 |      |       |      |      | E    |       |      | A    |      |      | A    |      |
| Timer - Assigned Phs         | 1    | 2     |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.1  | 123.4 |      | 9.5  | 0.0  | 130.5 |      | 9.5  |      |      |      |      |
| Change Period (Y+Rc), s      | 5.0  | 5.0   |      | 5.0  | 5.0  | 5.0   |      | 5.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 91.0 | 91.0  |      | 25.0 | 9.0  | 91.0  |      | 25.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 2.0  | 2.0   |      | 0.0  | 0.0  | 8.9   |      | 3.2  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 11.5  |      | 0.0  | 0.0  | 14.2  |      | 0.1  |      |      |      |      |
| <b>Intersection Summary</b>  |      |       |      |      |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |       |      | 1.9  |      |       |      |      |      |      |      |      |
| HCM 6th LOS                  |      |       |      | A    |      |       |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 28: Wheaton Way (SR 303) & Riddell Rd

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)         | 90   | 39   | 128  | 33   | 53   | 159  | 66   | 691  | 58   | 76   | 766  | 54   |
| Future Volume (veh/h)          | 90   | 39   | 128  | 33   | 53   | 159  | 66   | 691  | 58   | 76   | 766  | 54   |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach          |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln         | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1560 | 1560 | 1560 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h           | 97   | 42   | 138  | 35   | 57   | 171  | 71   | 735  | 62   | 82   | 824  | 58   |
| Peak Hour Factor               | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.94 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %           | 2    | 2    | 2    | 2    | 2    | 2    | 4    | 4    | 4    | 4    | 4    | 4    |
| Cap, veh/h                     | 182  | 234  | 198  | 150  | 202  | 171  | 544  | 1494 | 126  | 184  | 901  | 400  |
| Arrive On Green                | 0.06 | 0.15 | 0.15 | 0.04 | 0.13 | 0.13 | 0.30 | 0.54 | 0.54 | 0.13 | 0.61 | 0.61 |
| Sat Flow, veh/h                | 1509 | 1585 | 1340 | 1509 | 1585 | 1343 | 1485 | 2766 | 233  | 1485 | 2964 | 1317 |
| Grp Volume(v), veh/h           | 97   | 42   | 138  | 35   | 57   | 171  | 71   | 394  | 403  | 82   | 824  | 58   |
| Grp Sat Flow(s),veh/h/ln       | 1509 | 1585 | 1340 | 1509 | 1585 | 1343 | 1485 | 1482 | 1518 | 1485 | 1482 | 1317 |
| Q Serve(g_s), s                | 0.0  | 2.2  | 4.9  | 2.0  | 3.1  | 9.7  | 0.0  | 15.8 | 15.8 | 4.0  | 23.3 | 1.8  |
| Cycle Q Clear(g_c), s          | 0.0  | 2.2  | 4.9  | 2.0  | 3.1  | 9.7  | 0.0  | 15.8 | 15.8 | 4.0  | 23.3 | 1.8  |
| Prop In Lane                   | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.15 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h         | 182  | 234  | 198  | 150  | 202  | 171  | 544  | 800  | 819  | 184  | 901  | 400  |
| V/C Ratio(X)                   | 0.53 | 0.18 | 0.70 | 0.23 | 0.28 | 1.00 | 0.13 | 0.49 | 0.49 | 0.44 | 0.91 | 0.14 |
| Avail Cap(c_a), veh/h          | 237  | 334  | 282  | 204  | 300  | 254  | 544  | 800  | 819  | 262  | 1092 | 485  |
| HCM Platoon Ratio              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I)             | 0.83 | 0.83 | 0.83 | 1.00 | 1.00 | 1.00 | 0.94 | 0.94 | 0.94 | 0.66 | 0.66 | 0.66 |
| Uniform Delay (d), s/veh       | 42.0 | 35.4 | 10.6 | 39.8 | 37.5 | 26.9 | 22.7 | 13.7 | 13.7 | 26.5 | 17.5 | 13.3 |
| Incr Delay (d2), s/veh         | 1.5  | 0.2  | 2.7  | 0.6  | 0.6  | 45.3 | 0.1  | 2.0  | 2.0  | 0.8  | 11.0 | 0.5  |
| 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(95%),veh/ln       | 4.0  | 1.6  | 5.4  | 1.4  | 2.2  | 9.0  | 2.0  | 9.1  | 9.3  | 2.4  | 8.8  | 1.0  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 43.5 | 35.7 | 13.3 | 40.4 | 38.1 | 72.3 | 22.8 | 15.7 | 15.7 | 27.4 | 28.5 | 13.8 |
| LnGrp LOS                      | D    | D    | B    | D    | D    | E    | C    | B    | B    | C    | C    | B    |
| Approach Vol, veh/h            |      | 277  |      |      | 263  |      |      | 868  |      |      | 964  |      |
| Approach Delay, s/veh          |      | 27.3 |      |      | 60.6 |      |      | 16.3 |      |      | 27.5 |      |
| Approach LOS                   |      | C    |      |      | E    |      |      | B    |      |      | C    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 33.5 | 33.9 | 10.5 | 17.1 | 11.0 | 56.3 | 8.6  | 19.0 |      |      |      |      |
| 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    | 35.0 | 35.0 | 9.0  | 18.0 | 11.0 | 37.0 | 7.0  | 20.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2g), s | 25.3 | 25.3 | 2.0  | 11.7 | 6.0  | 17.8 | 4.0  | 6.9  |      |      |      |      |
| Green Ext Time (p_c), s        | 0.1  | 3.5  | 0.1  | 0.4  | 0.0  | 4.1  | 0.0  | 0.4  |      |      |      |      |
| <b>Intersection Summary</b>    |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay             |      |      |      |      |      |      |      |      |      |      | 27.1 |      |
| HCM 6th LOS                    |      |      |      |      |      |      |      |      |      |      | C    |      |

# HCM 6th Signalized Intersection Summary

30: N Callow Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔↔   |      | ↔    | ↔↔   |      | ↔    | ↑    | ↔    | ↔    | ↔    | ↔    |
| Traffic Volume (veh/h)       | 8    | 510  | 18   | 85   | 538  | 22   | 12   | 31   | 73   | 34   | 45   | 15   |
| Future Volume (veh/h)        | 8    | 510  | 18   | 85   | 538  | 22   | 12   | 31   | 73   | 34   | 45   | 15   |
| 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 |      | 0.96 | 0.96 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 8    | 531  | 19   | 89   | 560  | 23   | 12   | 32   | 76   | 35   | 47   | 16   |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 2    | 2    | 2    | 1    | 1    | 1    | 2    | 2    | 2    |
| Cap, veh/h                   | 44   | 1911 | 68   | 641  | 2212 | 91   | 25   | 267  | 217  | 201  | 122  | 42   |
| Arrive On Green              | 0.66 | 0.66 | 0.66 | 0.10 | 1.00 | 1.00 | 0.02 | 0.17 | 0.17 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h              | 16   | 2899 | 103  | 1509 | 2944 | 121  | 1521 | 1597 | 1300 | 1240 | 1117 | 380  |
| Grp Volume(v), veh/h         | 293  | 0    | 265  | 89   | 286  | 297  | 12   | 32   | 76   | 35   | 0    | 63   |
| Grp Sat Flow(s),veh/h/ln     | 1583 | 0    | 1435 | 1509 | 1506 | 1559 | 1521 | 1597 | 1300 | 1240 | 0    | 1497 |
| Q Serve(g_s), s              | 0.0  | 0.0  | 8.5  | 1.9  | 0.0  | 0.0  | 0.9  | 1.9  | 5.7  | 2.8  | 0.0  | 4.3  |
| Cycle Q Clear(g_c), s        | 8.4  | 0.0  | 8.5  | 1.9  | 0.0  | 0.0  | 0.9  | 1.9  | 5.7  | 2.8  | 0.0  | 4.3  |
| Prop In Lane                 | 0.03 |      | 0.07 | 1.00 |      | 0.08 | 1.00 |      | 1.00 | 1.00 |      | 0.25 |
| Lane Grp Cap(c), veh/h       | 1077 | 0    | 946  | 641  | 1131 | 1171 | 25   | 267  | 217  | 201  | 0    | 164  |
| V/C Ratio(X)                 | 0.27 | 0.00 | 0.28 | 0.14 | 0.25 | 0.25 | 0.47 | 0.12 | 0.35 | 0.17 | 0.00 | 0.39 |
| Avail Cap(c_a), veh/h        | 1077 | 0    | 946  | 695  | 1131 | 1171 | 118  | 574  | 467  | 364  | 0    | 361  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 0.97 | 0.97 | 0.97 | 0.91 | 0.91 | 0.91 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 7.8  | 0.0  | 7.8  | 4.6  | 0.0  | 0.0  | 53.6 | 39.0 | 40.5 | 44.9 | 0.0  | 45.6 |
| Incr Delay (d2), s/veh       | 0.6  | 0.0  | 0.7  | 0.1  | 0.5  | 0.5  | 11.8 | 0.2  | 0.9  | 0.4  | 0.0  | 1.5  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 5.2  | 0.0  | 4.8  | 0.9  | 0.3  | 0.3  | 0.7  | 1.4  | 3.4  | 1.6  | 0.0  | 3.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 8.4  | 0.0  | 8.6  | 4.7  | 0.5  | 0.5  | 65.4 | 39.1 | 41.4 | 45.3 | 0.0  | 47.0 |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | E    | D    | D    | D    | A    | D    |
| Approach Vol, veh/h          |      | 558  |      |      | 672  |      |      | 120  |      |      |      | 98   |
| Approach Delay, s/veh        |      | 8.5  |      |      | 1.1  |      |      | 43.2 |      |      |      | 46.4 |
| Approach LOS                 |      | A    |      |      | A    |      |      | D    |      |      |      | D    |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 22.9 |      | 87.1 | 6.3  | 16.5 | 10.1 | 77.0 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 39.5 |      | 61.5 | 8.5  | 26.5 | 9.5  | 47.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 7.7  |      | 2.0  | 2.9  | 6.3  | 3.9  | 10.5 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.4  |      | 4.0  | 0.0  | 0.4  | 0.1  | 3.8  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      |      | 10.5 |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      |      | B    |

# HCM 6th Signalized Intersection Summary

## 31: Naval Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    | ↗    |      | ↕    |      |
| Traffic Volume (veh/h)       | 5    | 590  | 10   | 30   | 625  | 9    | 11   | 21   | 33   | 15   | 30   | 16   |
| Future Volume (veh/h)        | 5    | 590  | 10   | 30   | 625  | 9    | 11   | 21   | 33   | 15   | 30   | 16   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00 |      | 1.00 | 1.00 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1547 | 1547 | 1547 | 1560 | 1560 | 1560 | 1572 | 1572 | 1572 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 5    | 621  | 11   | 32   | 658  | 9    | 12   | 22   | 35   | 16   | 32   | 17   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 5    | 5    | 5    | 4    | 4    | 4    | 3    | 3    | 3    | 5    | 5    | 5    |
| Cap, veh/h                   | 11   | 2117 | 37   | 51   | 2222 | 30   | 25   | 200  | 169  | 57   | 57   | 26   |
| Arrive On Green              | 0.01 | 0.48 | 0.48 | 0.07 | 1.00 | 1.00 | 0.02 | 0.13 | 0.13 | 0.07 | 0.07 | 0.07 |
| Sat Flow, veh/h              | 1474 | 2955 | 52   | 1485 | 2992 | 41   | 1497 | 1572 | 1329 | 238  | 820  | 375  |
| Grp Volume(v), veh/h         | 5    | 309  | 323  | 32   | 326  | 341  | 12   | 22   | 35   | 65   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1474 | 1470 | 1538 | 1485 | 1482 | 1551 | 1497 | 1572 | 1329 | 1433 | 0    | 0    |
| Q Serve(g_s), s              | 0.4  | 14.0 | 14.0 | 2.3  | 0.0  | 0.0  | 0.9  | 1.4  | 2.6  | 2.4  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.4  | 14.0 | 14.0 | 2.3  | 0.0  | 0.0  | 0.9  | 1.4  | 2.6  | 4.8  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 0.03 | 1.00 |      | 0.03 | 1.00 |      | 1.00 | 0.25 |      | 0.26 |
| Lane Grp Cap(c), veh/h       | 11   | 1053 | 1101 | 51   | 1100 | 1152 | 25   | 200  | 169  | 140  | 0    | 0    |
| V/C Ratio(X)                 | 0.44 | 0.29 | 0.29 | 0.63 | 0.30 | 0.30 | 0.48 | 0.11 | 0.21 | 0.46 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 141  | 1053 | 1101 | 115  | 1100 | 1152 | 116  | 593  | 502  | 408  | 0    | 0    |
| HCM Platoon Ratio            | 0.67 | 0.67 | 0.67 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.97 | 0.97 | 0.97 | 0.92 | 0.92 | 0.92 | 0.99 | 0.99 | 0.99 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 54.5 | 11.8 | 11.8 | 50.6 | 0.0  | 0.0  | 53.6 | 42.5 | 43.1 | 49.9 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 23.7 | 0.7  | 0.7  | 11.4 | 0.6  | 0.6  | 13.3 | 0.2  | 0.6  | 2.4  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.4  | 8.9  | 9.2  | 1.8  | 0.3  | 0.3  | 0.8  | 1.0  | 1.6  | 3.3  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 78.2 | 12.4 | 12.4 | 62.0 | 0.6  | 0.6  | 66.9 | 42.8 | 43.7 | 52.2 | 0.0  | 0.0  |
| LnGrp LOS                    | E    | B    | B    | E    | A    | A    | E    | D    | D    | D    | A    | A    |
| Approach Vol, veh/h          |      | 637  |      |      | 699  |      |      | 69   |      |      | 65   |      |
| Approach Delay, s/veh        |      | 12.9 |      |      | 3.4  |      |      | 47.4 |      |      | 52.2 |      |
| Approach LOS                 |      | B    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 8.2  | 83.3 | 6.3  | 12.1 | 5.4  | 86.2 |      | 18.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 5    | 46.5 | 8.5  | 28.5 | 10.5 | 44.5 |      | 41.5 |      |      |      |      |
| Max Q Clear Time (g_c+14), s | 14.3 | 16.0 | 2.9  | 6.8  | 2.4  | 2.0  |      | 4.6  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 4.2  | 0.0  | 0.3  | 0.0  | 4.7  |      | 0.2  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 11.8 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 32: High Ave & 11th St

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)        | 82   | 594  | 1    | 6    | 613  | 8    | 6    | 12   | 10   | 39   | 10   | 54   |
| Future Volume (veh/h)         | 82   | 594  | 1    | 6    | 613  | 8    | 6    | 12   | 10   | 39   | 10   | 54   |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.96 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1522 | 1522 | 1522 | 1560 | 1560 | 1560 | 1610 | 1610 | 1610 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h          | 98   | 707  | 1    | 7    | 730  | 10   | 7    | 14   | 12   | 46   | 12   | 64   |
| Peak Hour Factor              | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, %          | 7    | 7    | 7    | 4    | 4    | 4    | 0    | 0    | 0    | 3    | 3    | 3    |
| Cap, veh/h                    | 425  | 1968 | 3    | 535  | 1864 | 26   | 16   | 66   | 57   | 62   | 24   | 131  |
| Arrive On Green               | 0.10 | 1.00 | 1.00 | 0.00 | 0.21 | 0.21 | 0.01 | 0.08 | 0.08 | 0.04 | 0.11 | 0.11 |
| Sat Flow, veh/h               | 1450 | 2963 | 4    | 1485 | 2993 | 41   | 1533 | 786  | 674  | 1497 | 213  | 1137 |
| Grp Volume(v), veh/h          | 98   | 345  | 363  | 7    | 361  | 379  | 7    | 0    | 26   | 46   | 0    | 76   |
| Grp Sat Flow(s),veh/h/ln      | 1450 | 1446 | 1521 | 1485 | 1482 | 1552 | 1533 | 0    | 1459 | 1497 | 0    | 1350 |
| Q Serve(g_s), s               | 2.6  | 0.0  | 0.0  | 0.2  | 23.2 | 23.2 | 0.5  | 0.0  | 1.8  | 3.3  | 0.0  | 5.8  |
| Cycle Q Clear(g_c), s         | 2.6  | 0.0  | 0.0  | 0.2  | 23.2 | 23.2 | 0.5  | 0.0  | 1.8  | 3.3  | 0.0  | 5.8  |
| Prop In Lane                  | 1.00 |      | 0.00 | 1.00 |      | 0.03 | 1.00 |      | 0.46 | 1.00 |      | 0.84 |
| Lane Grp Cap(c), veh/h        | 425  | 960  | 1010 | 535  | 923  | 967  | 16   | 0    | 123  | 62   | 0    | 155  |
| V/C Ratio(X)                  | 0.23 | 0.36 | 0.36 | 0.01 | 0.39 | 0.39 | 0.43 | 0.00 | 0.21 | 0.75 | 0.00 | 0.49 |
| Avail Cap(c_a), veh/h         | 462  | 960  | 1010 | 620  | 923  | 967  | 105  | 0    | 352  | 102  | 0    | 325  |
| HCM Platoon Ratio             | 2.00 | 2.00 | 2.00 | 0.33 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)            | 0.97 | 0.97 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh      | 8.5  | 0.0  | 0.0  | 7.5  | 25.7 | 25.7 | 54.1 | 0.0  | 47.0 | 52.2 | 0.0  | 45.7 |
| Incr Delay (d2), s/veh        | 0.3  | 1.0  | 1.0  | 0.0  | 1.2  | 1.2  | 17.4 | 0.0  | 0.8  | 16.2 | 0.0  | 2.4  |
| 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(95%),veh/ln      | 1.3  | 0.5  | 0.5  | 0.1  | 14.5 | 15.1 | 0.5  | 0.0  | 1.3  | 2.8  | 0.0  | 3.7  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 8.8  | 1.0  | 1.0  | 7.5  | 26.9 | 26.9 | 71.5 | 0.0  | 47.8 | 68.4 | 0.0  | 48.0 |
| LnGrp LOS                     | A    | A    | A    | A    | C    | C    | E    | A    | D    | E    | A    | D    |
| Approach Vol, veh/h           |      | 806  |      |      | 747  |      |      | 33   |      |      | 122  |      |
| Approach Delay, s/veh         |      | 1.9  |      |      | 26.7 |      |      | 52.8 |      |      | 55.7 |      |
| Approach LOS                  |      | A    |      |      | C    |      |      | D    |      |      | E    |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 14.8 | 6.7  | 78.5 | 6.7  | 18.1 | 11.2 | 74.0 |      |      |      |      |      |
| Change Period (Y+Rc), s       | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  |      |      |      |      |
| Max Green Setting (Gmax), s   | 26.5 | 7.5  | 46.5 | 7.5  | 26.5 | 8.5  | 45.5 |      |      |      |      |      |
| Max Q Clear Time (g_c+1/3), s | 3.8  | 2.2  | 2.0  | 2.5  | 7.8  | 4.6  | 25.2 |      |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 0.1  | 0.0  | 5.1  | 0.0  | 0.3  | 0.1  | 4.6  |      |      |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay            |      |      |      | 17.6 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                   |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 33: Park Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 23   | 194  | 62   | 12   | 205  | 8    | 18   | 18   | 7    | 8    | 27   | 12   |
| Future Volume (veh/h)        | 23   | 194  | 62   | 12   | 205  | 8    | 18   | 18   | 7    | 8    | 27   | 12   |
| 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 |      | 0.99 | 0.98 |      | 0.98 | 0.97 |      | 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       | 1560 | 1560 | 1560 | 1547 | 1547 | 1547 | 1547 | 1547 | 1547 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 27   | 226  | 72   | 14   | 238  | 9    | 21   | 21   | 8    | 9    | 31   | 14   |
| Peak Hour Factor             | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 5    | 5    | 5    | 5    | 5    | 5    | 2    | 2    | 2    |
| Cap, veh/h                   | 61   | 470  | 398  | 33   | 418  | 16   | 281  | 168  | 216  | 199  | 228  | 223  |
| Arrive On Green              | 0.04 | 0.30 | 0.30 | 0.02 | 0.28 | 0.28 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| Sat Flow, veh/h              | 1485 | 1560 | 1320 | 1474 | 1481 | 56   | 464  | 998  | 1282 | 194  | 1356 | 1325 |
| Grp Volume(v), veh/h         | 27   | 226  | 72   | 14   | 0    | 247  | 42   | 0    | 8    | 40   | 0    | 14   |
| Grp Sat Flow(s),veh/h/ln     | 1485 | 1560 | 1320 | 1474 | 0    | 1537 | 1462 | 0    | 1282 | 1550 | 0    | 1325 |
| Q Serve(g_s), s              | 0.5  | 3.1  | 1.1  | 0.2  | 0.0  | 3.6  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.2  |
| Cycle Q Clear(g_c), s        | 0.5  | 3.1  | 1.1  | 0.2  | 0.0  | 3.6  | 0.6  | 0.0  | 0.1  | 0.6  | 0.0  | 0.2  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 0.04 | 0.50 |      | 1.00 | 0.22 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 61   | 470  | 398  | 33   | 0    | 434  | 449  | 0    | 216  | 427  | 0    | 223  |
| V/C Ratio(X)                 | 0.45 | 0.48 | 0.18 | 0.43 | 0.00 | 0.57 | 0.09 | 0.00 | 0.04 | 0.09 | 0.00 | 0.06 |
| Avail Cap(c_a), veh/h        | 1147 | 2085 | 1764 | 1138 | 0    | 2054 | 1305 | 0    | 990  | 1347 | 0    | 1023 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 12.4 | 7.6  | 6.9  | 12.8 | 0.0  | 8.1  | 9.4  | 0.0  | 9.2  | 9.4  | 0.0  | 9.3  |
| Incr Delay (d2), s/veh       | 5.1  | 0.8  | 0.2  | 8.6  | 0.0  | 1.2  | 0.1  | 0.0  | 0.1  | 0.1  | 0.0  | 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(95%),veh/lr     | 0.4  | 1.3  | 0.4  | 0.3  | 0.0  | 1.5  | 0.3  | 0.0  | 0.1  | 0.3  | 0.0  | 0.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 17.5 | 8.3  | 7.1  | 21.5 | 0.0  | 9.3  | 9.5  | 0.0  | 9.3  | 9.5  | 0.0  | 9.4  |
| LnGrp LOS                    | B    | A    | A    | C    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 325  |      |      | 261  |      |      | 50   |      |      | 54   |      |
| Approach Delay, s/veh        |      | 8.8  |      |      | 10.0 |      |      | 9.5  |      |      | 9.5  |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4    |      | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 9.0  | 5.1  | 12.5 |      | 9.0  | 5.6  | 12.0 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 20.5 | 20.5 | 35.5 |      | 20.5 | 20.5 | 35.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.6  | 2.2  | 5.1  |      | 2.6  | 2.5  | 5.6  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.2  | 0.0  | 1.6  |      | 0.2  | 0.0  | 1.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 9.4  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 34: Washington Ave & Manette Bridge

04/29/2024



| Movement                     | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 239  | 150  | 46   | 166  | 130  | 22   |
| Future Volume (veh/h)        | 239  | 150  | 46   | 166  | 130  | 22   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 |      | 0.98 | 1.00 |      |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1497 | 1497 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 295  | 0    | 57   | 205  | 160  | 27   |
| Peak Hour Factor             | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, %         | 3    | 3    | 9    | 9    | 5    | 5    |
| Cap, veh/h                   | 370  |      | 82   | 295  | 205  | 833  |
| Arrive On Green              | 0.25 | 0.00 | 0.29 | 0.29 | 0.14 | 0.54 |
| Sat Flow, veh/h              | 1497 | 1332 | 280  | 1008 | 1474 | 1547 |
| Grp Volume(v), veh/h         | 295  | 0    | 0    | 262  | 160  | 27   |
| Grp Sat Flow(s),veh/h/ln     | 1497 | 1332 | 0    | 1288 | 1474 | 1547 |
| Q Serve(g_s), s              | 7.7  | 0.0  | 0.0  | 7.6  | 4.4  | 0.3  |
| Cycle Q Clear(g_c), s        | 7.7  | 0.0  | 0.0  | 7.6  | 4.4  | 0.3  |
| Prop In Lane                 | 1.00 | 1.00 |      | 0.78 | 1.00 |      |
| Lane Grp Cap(c), veh/h       | 370  |      | 0    | 376  | 205  | 833  |
| V/C Ratio(X)                 | 0.80 |      | 0.00 | 0.70 | 0.78 | 0.03 |
| Avail Cap(c_a), veh/h        | 2339 |      | 0    | 2319 | 1950 | 2785 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 14.8 | 0.0  | 0.0  | 13.2 | 17.4 | 4.5  |
| Incr Delay (d2), s/veh       | 4.0  | 0.0  | 0.0  | 2.3  | 6.4  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 4.8  | 0.0  | 0.0  | 3.7  | 3.0  | 0.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 18.8 | 0.0  | 0.0  | 15.5 | 23.8 | 4.6  |
| LnGrp LOS                    | B    |      | A    | B    | C    | A    |
| Approach Vol, veh/h          | 295  |      | 262  |      |      | 187  |
| Approach Delay, s/veh        | 18.8 |      | 15.5 |      |      | 21.1 |
| Approach LOS                 | B    |      | B    |      |      | C    |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s     | 10.3 | 16.8 |      |      | 27.1 | 14.9 |
| Change Period (Y+Rc), s      | 4.5  | 4.5  |      |      | 4.5  | 4.5  |
| Max Green Setting (Gmax), s  | 55.5 | 75.5 |      |      | 75.5 | 65.5 |
| Max Q Clear Time (g_c+1), s  | 10.4 | 9.6  |      |      | 2.3  | 9.7  |
| Green Ext Time (p_c), s      | 0.5  | 2.1  |      |      | 0.1  | 1.0  |

### Intersection Summary

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

### Notes

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

HCM 6th Signalized Intersection Summary  
 35: N Callow Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      | ↗    | ↕    |      |      | ↖    | ↗    |      | ↕    |      |
| Traffic Volume (veh/h)       | 3    | 28   | 4    | 618  | 0    | 16   | 1    | 119  | 864  | 16   | 238  | 1    |
| Future Volume (veh/h)        | 3    | 28   | 4    | 618  | 0    | 16   | 1    | 119  | 864  | 16   | 238  | 1    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1572 | 1560 | 1560 | 1560 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 3    | 30   | 4    | 688  | 0    | 0    | 1    | 129  | 939  | 17   | 259  | 1    |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 3    | 3    | 3    | 4    | 4    | 4    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 37   | 373  | 50   | 641  | 337  | 0    | 39   | 542  | 1320 | 74   | 937  | 4    |
| Arrive On Green              | 0.30 | 0.30 | 0.30 | 0.22 | 0.00 | 0.00 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 |
| Sat Flow, veh/h              | 125  | 1245 | 166  | 2971 | 1560 | 0    | 2    | 1583 | 2364 | 93   | 2735 | 11   |
| Grp Volume(v), veh/h         | 37   | 0    | 0    | 688  | 0    | 0    | 130  | 0    | 939  | 141  | 0    | 136  |
| Grp Sat Flow(s),veh/h/ln     | 1536 | 0    | 0    | 1485 | 1560 | 0    | 1584 | 0    | 1182 | 1398 | 0    | 1440 |
| Q Serve(g_s), s              | 1.6  | 0.0  | 0.0  | 20.5 | 0.0  | 0.0  | 0.0  | 0.0  | 27.6 | 0.0  | 0.0  | 6.5  |
| Cycle Q Clear(g_c), s        | 1.6  | 0.0  | 0.0  | 20.5 | 0.0  | 0.0  | 5.6  | 0.0  | 27.6 | 6.1  | 0.0  | 6.5  |
| Prop In Lane                 | 0.08 |      | 0.11 | 1.00 |      | 0.00 | 0.01 |      | 1.00 | 0.12 |      | 0.01 |
| Lane Grp Cap(c), veh/h       | 460  | 0    | 0    | 641  | 337  | 0    | 581  | 0    | 1320 | 521  | 0    | 493  |
| V/C Ratio(X)                 | 0.08 | 0.00 | 0.00 | 1.07 | 0.00 | 0.00 | 0.22 | 0.00 | 0.71 | 0.27 | 0.00 | 0.28 |
| Avail Cap(c_a), veh/h        | 460  | 0    | 0    | 641  | 337  | 0    | 613  | 0    | 1369 | 548  | 0    | 523  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.85 | 0.00 | 0.85 |
| Uniform Delay (d), s/veh     | 23.9 | 0.0  | 0.0  | 37.2 | 0.0  | 0.0  | 22.4 | 0.0  | 15.4 | 22.5 | 0.0  | 22.7 |
| Incr Delay (d2), s/veh       | 0.1  | 0.0  | 0.0  | 56.5 | 0.0  | 0.0  | 0.3  | 0.0  | 1.9  | 0.3  | 0.0  | 0.4  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 1.1  | 0.0  | 0.0  | 18.8 | 0.0  | 0.0  | 3.8  | 0.0  | 16.9 | 4.2  | 0.0  | 4.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 24.0 | 0.0  | 0.0  | 93.7 | 0.0  | 0.0  | 22.6 | 0.0  | 17.2 | 22.9 | 0.0  | 23.0 |
| LnGrp LOS                    | C    | A    | A    | F    | A    | A    | C    | A    | B    | C    | A    | C    |
| Approach Vol, veh/h          |      | 37   |      | 688  |      |      | 1069 |      |      | 277  |      |      |
| Approach Delay, s/veh        |      | 24.0 |      | 93.7 |      |      | 17.9 |      |      | 22.9 |      |      |
| Approach LOS                 |      | C    |      | F    |      |      | B    |      |      | C    |      |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      |      | 6    |      |      | 8    |      |      |
| Phs Duration (G+Y+Rc), s     |      | 37.0 |      | 33.0 |      |      | 37.0 |      |      | 25.0 |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      |      | 4.5  |      |      | 4.5  |      |      |
| Max Green Setting (Gmax), s  |      | 34.5 |      | 26.5 |      |      | 34.5 |      |      | 20.5 |      |      |
| Max Q Clear Time (g_c+I1), s |      | 29.6 |      | 3.6  |      |      | 8.5  |      |      | 22.5 |      |      |
| Green Ext Time (p_c), s      |      | 2.9  |      | 0.1  |      |      | 2.6  |      |      | 0.0  |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 43.9 |
| HCM 6th LOS        | D    |

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 36: N Montgomery Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔↔   |      |      | ↔↔   |      |      | ↔    |      |      | ↔    |      |
| Traffic Volume (veh/h)       | 26   | 886  | 2    | 0    | 570  | 7    | 7    | 4    | 5    | 13   | 4    | 50   |
| Future Volume (veh/h)        | 26   | 886  | 2    | 0    | 570  | 7    | 7    | 4    | 5    | 13   | 4    | 50   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 0.99 |      | 0.99 | 0.99 |      | 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       | 1585 | 1585 | 1585 | 1560 | 1560 | 1560 | 1447 | 1447 | 1447 | 1535 | 1535 | 1535 |
| Adj Flow Rate, veh/h         | 28   | 943  | 2    | 0    | 606  | 7    | 7    | 4    | 5    | 14   | 4    | 53   |
| 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, %         | 2    | 2    | 2    | 4    | 4    | 4    | 13   | 13   | 13   | 6    | 6    | 6    |
| Cap, veh/h                   | 83   | 2401 | 5    | 0    | 2466 | 28   | 89   | 41   | 33   | 61   | 13   | 77   |
| Arrive On Green              | 0.82 | 0.82 | 0.82 | 0.00 | 0.82 | 0.82 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| Sat Flow, veh/h              | 50   | 2922 | 6    | 0    | 3079 | 35   | 401  | 526  | 421  | 166  | 169  | 986  |
| Grp Volume(v), veh/h         | 503  | 0    | 470  | 0    | 299  | 314  | 16   | 0    | 0    | 71   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1537 | 0    | 1441 | 0    | 1482 | 1554 | 1348 | 0    | 0    | 1321 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 7.8  | 0.0  | 4.1  | 4.1  | 0.0  | 0.0  | 0.0  | 2.2  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 7.5  | 0.0  | 7.8  | 0.0  | 4.1  | 4.1  | 1.0  | 0.0  | 0.0  | 4.7  | 0.0  | 0.0  |
| Prop In Lane                 | 0.06 |      | 0.00 | 0.00 |      | 0.02 | 0.44 |      | 0.31 | 0.20 |      | 0.75 |
| Lane Grp Cap(c), veh/h       | 1305 | 0    | 1184 | 0    | 1218 | 1277 | 163  | 0    | 0    | 151  | 0    | 0    |
| V/C Ratio(X)                 | 0.39 | 0.00 | 0.40 | 0.00 | 0.25 | 0.25 | 0.10 | 0.00 | 0.00 | 0.47 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1305 | 0    | 1184 | 0    | 1218 | 1277 | 423  | 0    | 0    | 420  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.89 | 0.00 | 0.89 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 2.1  | 0.0  | 2.1  | 0.0  | 1.8  | 1.8  | 38.7 | 0.0  | 0.0  | 40.4 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.8  | 0.0  | 0.9  | 0.0  | 0.5  | 0.5  | 0.3  | 0.0  | 0.0  | 2.7  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.9  | 0.0  | 2.8  | 0.0  | 1.5  | 1.6  | 0.6  | 0.0  | 0.0  | 3.0  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 2.9  | 0.0  | 3.0  | 0.0  | 2.3  | 2.3  | 39.0 | 0.0  | 0.0  | 43.1 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | D    | A    | A    | D    | A    | A    |
| Approach Vol, veh/h          |      | 973  |      |      | 613  |      |      | 16   |      |      | 71   |      |
| Approach Delay, s/veh        |      | 2.9  |      |      | 2.3  |      |      | 39.0 |      |      | 43.1 |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 11.5 |      | 78.5 |      | 11.5 |      | 78.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 25.5 |      | 55.5 |      | 25.5 |      | 55.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 3.0  |      | 9.8  |      | 6.7  |      | 6.1  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.0  |      | 17.5 |      | 0.4  |      | 9.3  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      | 4.7  |      |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      | A    |      |

HCM 6th Signalized Intersection Summary  
 37: Burwell St (SR 304) & Naval Ave

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)       | 85   | 759  | 67   | 104  | 453  | 19   | 12   | 29   | 9    | 28   | 202  | 94   |
| Future Volume (veh/h)        | 85   | 759  | 67   | 104  | 453  | 19   | 12   | 29   | 9    | 28   | 202  | 94   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1572 | 1572 | 1572 | 1572 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 88   | 782  | 69   | 107  | 467  | 20   | 12   | 30   | 9    | 29   | 208  | 97   |
| 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, %         | 3    | 3    | 3    | 3    | 3    | 3    | 2    | 2    | 2    | 1    | 1    | 1    |
| Cap, veh/h                   | 114  | 1136 | 100  | 137  | 1240 | 53   | 27   | 385  | 109  | 58   | 381  | 170  |
| Arrive On Green              | 0.08 | 0.41 | 0.41 | 0.09 | 0.42 | 0.42 | 0.02 | 0.17 | 0.17 | 0.04 | 0.19 | 0.19 |
| Sat Flow, veh/h              | 1497 | 2776 | 245  | 1497 | 2919 | 125  | 1509 | 2297 | 652  | 1521 | 2027 | 907  |
| Grp Volume(v), veh/h         | 88   | 421  | 430  | 107  | 239  | 248  | 12   | 19   | 20   | 29   | 154  | 151  |
| Grp Sat Flow(s),veh/h/ln     | 1497 | 1494 | 1527 | 1497 | 1494 | 1550 | 1509 | 1506 | 1443 | 1521 | 1518 | 1416 |
| Q Serve(g_s), s              | 3.5  | 14.2 | 14.2 | 4.3  | 6.7  | 6.7  | 0.5  | 0.7  | 0.7  | 1.1  | 5.6  | 6.0  |
| Cycle Q Clear(g_c), s        | 3.5  | 14.2 | 14.2 | 4.3  | 6.7  | 6.7  | 0.5  | 0.7  | 0.7  | 1.1  | 5.6  | 6.0  |
| Prop In Lane                 | 1.00 |      | 0.16 | 1.00 |      | 0.08 | 1.00 |      | 0.45 | 1.00 |      | 0.64 |
| Lane Grp Cap(c), veh/h       | 114  | 611  | 625  | 137  | 634  | 658  | 27   | 253  | 242  | 58   | 285  | 266  |
| V/C Ratio(X)                 | 0.77 | 0.69 | 0.69 | 0.78 | 0.38 | 0.38 | 0.44 | 0.08 | 0.08 | 0.50 | 0.54 | 0.57 |
| Avail Cap(c_a), veh/h        | 867  | 1838 | 1879 | 1111 | 1838 | 1907 | 1119 | 1117 | 1070 | 632  | 1126 | 1050 |
| 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     | 27.8 | 14.9 | 14.9 | 27.3 | 12.1 | 12.1 | 29.8 | 21.5 | 21.5 | 28.9 | 22.5 | 22.7 |
| Incr Delay (d2), s/veh       | 12.5 | 1.7  | 1.6  | 11.0 | 0.4  | 0.4  | 12.8 | 0.2  | 0.2  | 7.8  | 1.9  | 2.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.9  | 8.1  | 8.3  | 3.4  | 3.8  | 3.9  | 0.5  | 0.4  | 0.4  | 1.0  | 3.7  | 3.7  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 40.4 | 16.6 | 16.6 | 38.3 | 12.5 | 12.5 | 42.6 | 21.7 | 21.7 | 36.7 | 24.4 | 25.0 |
| LnGrp LOS                    | D    | B    | B    | D    | B    | B    | D    | C    | C    | D    | C    | C    |
| Approach Vol, veh/h          |      | 939  |      |      | 594  |      |      | 51   |      |      | 334  |      |
| Approach Delay, s/veh        |      | 18.8 |      |      | 17.2 |      |      | 26.6 |      |      | 25.7 |      |
| Approach LOS                 |      | B    |      |      | B    |      |      | C    |      |      | C    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 6.8  | 14.8 | 10.1 | 29.6 | 5.6  | 16.0 | 9.2  | 30.6 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 25.5 | 45.5 | 45.5 | 75.5 | 45.5 | 45.5 | 35.5 | 75.5 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 13.5 | 2.7  | 6.3  | 16.2 | 2.5  | 8.0  | 5.5  | 8.7  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 0.2  | 0.4  | 8.9  | 0.0  | 2.5  | 0.3  | 4.3  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 19.7 |
| HCM 6th LOS        | B    |

HCM 6th Signalized Intersection Summary  
 38: State Ave & Burwell St (SR 304)

04/29/2024

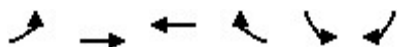


| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕↕   |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 7    | 766  | 21   | 7    | 499  | 0    | 18   | 2    | 8    | 6    | 13   | 3    |
| Future Volume (veh/h)        | 7    | 766  | 21   | 7    | 499  | 0    | 18   | 2    | 8    | 6    | 13   | 3    |
| 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 |      | 1.00 | 0.86 |      | 0.91 | 0.92 |      | 0.83 |
| 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       | 1560 | 1560 | 1560 | 1535 | 1535 | 1535 | 1560 | 1560 | 1560 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 7    | 815  | 22   | 7    | 531  | 0    | 19   | 2    | 9    | 6    | 14   | 3    |
| 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, %         | 4    | 4    | 4    | 6    | 6    | 6    | 4    | 4    | 4    | 0    | 0    | 0    |
| Cap, veh/h                   | 36   | 2268 | 61   | 35   | 1200 | 0    | 146  | 20   | 50   | 73   | 139  | 26   |
| Arrive On Green              | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.00 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Sat Flow, veh/h              | 7    | 2873 | 77   | 6    | 1520 | 0    | 713  | 146  | 368  | 257  | 1021 | 192  |
| Grp Volume(v), veh/h         | 444  | 0    | 400  | 538  | 0    | 0    | 30   | 0    | 0    | 23   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1554 | 0    | 1403 | 1526 | 0    | 0    | 1227 | 0    | 0    | 1470 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 10.1 | 0.0  | 0.0  | 0.0  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 10.0 | 0.0  | 10.1 | 13.6 | 0.0  | 0.0  | 2.4  | 0.0  | 0.0  | 1.6  | 0.0  | 0.0  |
| Prop In Lane                 | 0.02 |      | 0.05 | 0.01 |      | 0.00 | 0.63 |      | 0.30 | 0.26 |      | 0.13 |
| Lane Grp Cap(c), veh/h       | 1257 | 0    | 1108 | 1235 | 0    | 0    | 215  | 0    | 0    | 237  | 0    | 0    |
| V/C Ratio(X)                 | 0.35 | 0.00 | 0.36 | 0.44 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1257 | 0    | 1108 | 1235 | 0    | 0    | 308  | 0    | 0    | 348  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.70 | 0.00 | 0.70 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 3.7  | 0.0  | 3.7  | 4.1  | 0.0  | 0.0  | 45.8 | 0.0  | 0.0  | 45.5 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.5  | 0.0  | 0.6  | 1.1  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 5.2  | 0.0  | 4.7  | 7.2  | 0.0  | 0.0  | 1.5  | 0.0  | 0.0  | 1.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 4.3  | 0.0  | 4.4  | 5.2  | 0.0  | 0.0  | 45.9 | 0.0  | 0.0  | 45.6 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | D    | A    | A    | D    | A    | A    |
| Approach Vol, veh/h          |      | 844  |      |      | 538  |      |      | 30   |      |      | 23   |      |
| Approach Delay, s/veh        |      | 4.3  |      |      | 5.2  |      |      | 45.9 |      |      | 45.6 |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 99.2 |      | 20.8 |      | 99.2 |      | 20.8 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 85.5 |      | 25.5 |      | 85.5 |      | 25.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 12.1 |      | 3.6  |      | 15.6 |      | 4.4  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 10.9 |      | 0.0  |      | 6.7  |      | 0.1  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 6.2  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 40: Burwell St (SR 304) & Park Ave

04/29/2024



| Movement                     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕↕   | ↕↕   |      | ↕    | ↕    |
| Traffic Volume (veh/h)       | 60   | 351  | 156  | 6    | 13   | 16   |
| Future Volume (veh/h)        | 60   | 351  | 156  | 6    | 13   | 16   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.99 |      |      | 0.99 | 1.00 | 0.99 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1497 | 1497 | 1572 | 1572 | 1522 | 1522 |
| Adj Flow Rate, veh/h         | 61   | 358  | 159  | 6    | 13   | 16   |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 9    | 9    | 3    | 3    | 7    | 7    |
| Cap, veh/h                   | 357  | 986  | 1155 | 43   | 40   | 49   |
| Arrive On Green              | 0.39 | 0.39 | 0.39 | 0.39 | 0.07 | 0.07 |
| Sat Flow, veh/h              | 218  | 2573 | 3013 | 110  | 588  | 724  |
| Grp Volume(v), veh/h         | 234  | 185  | 81   | 84   | 30   | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1429 | 1294 | 1494 | 1551 | 1357 | 0    |
| Q Serve(g_s), s              | 0.0  | 1.7  | 0.6  | 0.6  | 0.4  | 0.0  |
| Cycle Q Clear(g_c), s        | 1.9  | 1.7  | 0.6  | 0.6  | 0.4  | 0.0  |
| Prop In Lane                 | 0.26 |      |      | 0.07 | 0.43 | 0.53 |
| Lane Grp Cap(c), veh/h       | 834  | 509  | 588  | 611  | 93   | 0    |
| V/C Ratio(X)                 | 0.28 | 0.36 | 0.14 | 0.14 | 0.32 | 0.00 |
| Avail Cap(c_a), veh/h        | 4056 | 3520 | 4063 | 4219 | 2068 | 0    |
| HCM Platoon Ratio            | 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 | 0.00 |
| Uniform Delay (d), s/veh     | 3.6  | 3.6  | 3.2  | 3.3  | 7.4  | 0.0  |
| Incr Delay (d2), s/veh       | 0.1  | 0.3  | 0.1  | 0.1  | 1.5  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.1  | 0.1  | 0.0  | 0.0  | 0.2  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 3.8  | 3.9  | 3.3  | 3.3  | 8.9  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 419  | 165  |      | 30   |      |
| Approach Delay, s/veh        |      | 3.8  | 3.3  |      | 8.9  |      |
| Approach LOS                 |      | A    | A    |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |
| Phs Duration (G+Y+Rc), s     |      | 11.1 |      | 5.6  |      | 11.1 |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |
| Max Green Setting (Gmax), s  |      | 45.5 |      | 25.5 |      | 45.5 |
| Max Q Clear Time (g_c+l1), s |      | 3.9  |      | 2.4  |      | 2.6  |
| Green Ext Time (p_c), s      |      | 2.4  |      | 0.0  |      | 0.8  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 3.9  |      |      |      |
| HCM 6th LOS                  |      |      | A    |      |      |      |

### Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 42: Pacific Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|-----|-----|-----|------|------|------|
| Lane Configurations          |      | ↔    | ↔    |      | ↔    |      |     |     |     |      | ↔    |      |
| Traffic Volume (veh/h)       | 15   | 124  | 236  | 62   | 147  | 8    | 0   | 0   | 0   | 14   | 105  | 7    |
| Future Volume (veh/h)        | 15   | 124  | 236  | 62   | 147  | 8    | 0   | 0   | 0   | 14   | 105  | 7    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.99 |      | 0.89 | 0.95 |      | 0.99 |     |     |     | 1.00 |      | 0.75 |
| Parking Bus, Adj             | 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   |      |      |
| Adj Sat Flow, veh/h/ln       | 1472 | 1472 | 1472 | 1497 | 1497 | 1497 |     |     |     | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 17   | 141  | 268  | 70   | 167  | 9    |     |     |     | 16   | 119  | 8    |
| Peak Hour Factor             | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |     |     |     | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, %         | 11   | 11   | 11   | 9    | 9    | 9    |     |     |     | 5    | 5    | 5    |
| Cap, veh/h                   | 140  | 611  | 483  | 241  | 446  | 21   |     |     |     | 55   | 410  | 28   |
| Arrive On Green              | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |     |     |     | 0.33 | 0.33 | 0.33 |
| Sat Flow, veh/h              | 56   | 1398 | 1104 | 244  | 1022 | 48   |     |     |     | 167  | 1240 | 83   |
| Grp Volume(v), veh/h         | 158  | 0    | 268  | 246  | 0    | 0    |     |     |     | 143  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln1454 | 0    | 1104 | 1313 | 0    | 0    | 0    |     |     |     | 1491 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 6.2  | 0.0  | 0.0  | 0.0  |     |     |     | 2.4  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.3  | 0.0  | 6.2  | 3.8  | 0.0  | 0.0  |     |     |     | 2.4  | 0.0  | 0.0  |
| Prop In Lane                 | 0.11 |      | 1.00 | 0.28 |      | 0.04 |     |     |     | 0.11 |      | 0.06 |
| Lane Grp Cap(c), veh/h       | 751  | 0    | 483  | 708  | 0    | 0    |     |     |     | 493  | 0    | 0    |
| V/C Ratio(X)                 | 0.21 | 0.00 | 0.56 | 0.35 | 0.00 | 0.00 |     |     |     | 0.29 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 2029 | 0    | 1474 | 1818 | 0    | 0    |     |     |     | 1341 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |     |     |     | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 6.1  | 0.0  | 7.2  | 6.5  | 0.0  | 0.0  |     |     |     | 8.5  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.1  | 0.0  | 1.0  | 0.3  | 0.0  | 0.0  |     |     |     | 0.3  | 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  |
| %ile BackOfQ(95%),veh/lr0.9  | 0.0  | 0.0  | 2.0  | 1.6  | 0.0  | 0.0  |     |     |     | 1.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |     |     |     |      |      |      |
| LnGrp Delay(d),s/veh         | 6.3  | 0.0  | 8.2  | 6.8  | 0.0  | 0.0  |     |     |     | 8.9  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    |     |     |     | A    | A    | A    |
| Approach Vol, veh/h          |      | 426  |      | 246  |      |      |     |     |     | 143  |      |      |
| Approach Delay, s/veh        |      | 7.5  |      | 6.8  |      |      |     |     |     | 8.9  |      |      |
| Approach LOS                 |      | A    |      | A    |      |      |     |     |     | A    |      |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |     |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 19.1 |      | 15.4 |      | 19.1 |     |     |     |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  |      | 4.0  |      | 4.0  |     |     |     |      |      |      |
| Max Green Setting (Gmax), s  |      | 46.0 |      | 31.0 |      | 46.0 |     |     |     |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 8.2  |      | 4.4  |      | 5.8  |     |     |     |      |      |      |
| Green Ext Time (p_c), s      |      | 2.3  |      | 0.8  |      | 1.9  |     |     |     |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |     |     |     |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 7.5  |      |      |     |     |     |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |     |     |     |      |      |      |

HCM 6th Signalized Intersection Summary  
 43: Washington Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔    |      |      | ↔    |      |      | ↔↔   |      |      | ↔    |      |
| Traffic Volume (veh/h)       | 60   | 1    | 0    | 0    | 3    | 1    | 79   | 112  | 0    | 0    | 0    | 164  |
| Future Volume (veh/h)        | 60   | 1    | 0    | 0    | 3    | 1    | 79   | 112  | 0    | 0    | 0    | 164  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 0.96 |      | 1.00 | 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       | 1585 | 1585 | 0    | 0    | 1610 | 1610 | 1434 | 1434 | 1434 | 1459 | 1459 | 1459 |
| Adj Flow Rate, veh/h         | 66   | 1    | 0    | 0    | 3    | 1    | 87   | 123  | 0    | 0    | 0    | 180  |
| Peak Hour Factor             | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 2    | 2    | 0    | 0    | 0    | 0    | 14   | 14   | 14   | 12   | 12   | 12   |
| Cap, veh/h                   | 130  | 2    | 0    | 0    | 8    | 3    | 486  | 638  | 0    | 0    | 0    | 483  |
| Arrive On Green              | 0.09 | 0.09 | 0.00 | 0.00 | 0.01 | 0.01 | 0.41 | 0.41 | 0.00 | 0.00 | 0.00 | 0.41 |
| Sat Flow, veh/h              | 1488 | 23   | 0    | 0    | 1155 | 385  | 621  | 1606 | 0    | 0    | 0    | 1166 |
| Grp Volume(v), veh/h         | 67   | 0    | 0    | 0    | 0    | 4    | 117  | 93   | 0    | 0    | 0    | 180  |
| Grp Sat Flow(s),veh/h/ln     | 1510 | 0    | 0    | 0    | 0    | 1539 | 922  | 1240 | 0    | 0    | 0    | 1166 |
| Q Serve(g_s), s              | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 1.2  | 1.3  | 0.0  | 0.0  | 0.0  | 2.9  |
| Cycle Q Clear(g_c), s        | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 4.2  | 1.3  | 0.0  | 0.0  | 0.0  | 2.9  |
| Prop In Lane                 | 0.99 |      | 0.00 | 0.00 |      | 0.25 | 0.74 |      | 0.00 | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 132  | 0    | 0    | 0    | 0    | 10   | 610  | 513  | 0    | 0    | 0    | 483  |
| V/C Ratio(X)                 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.19 | 0.18 | 0.00 | 0.00 | 0.00 | 0.37 |
| Avail Cap(c_a), veh/h        | 1404 | 0    | 0    | 0    | 0    | 870  | 2421 | 2508 | 0    | 0    | 0    | 2359 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 12.0 | 0.0  | 0.0  | 0.0  | 0.0  | 13.6 | 6.0  | 5.1  | 0.0  | 0.0  | 0.0  | 5.6  |
| Incr Delay (d2), s/veh       | 2.2  | 0.0  | 0.0  | 0.0  | 0.0  | 9.0  | 0.2  | 0.2  | 0.0  | 0.0  | 0.0  | 0.6  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.5  | 0.4  | 0.0  | 0.0  | 0.0  | 0.8  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 14.2 | 0.0  | 0.0  | 0.0  | 0.0  | 22.6 | 6.2  | 5.3  | 0.0  | 0.0  | 0.0  | 6.1  |
| LnGrp LOS                    | B    | A    | A    | A    | A    | C    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 67   |      |      | 4    |      |      | 210  |      |      |      | 180  |
| Approach Delay, s/veh        |      | 14.2 |      |      | 22.6 |      |      | 5.8  |      |      |      | 6.1  |
| Approach LOS                 |      | B    |      |      | C    |      |      | A    |      |      |      | A    |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 15.9 |      | 6.9  |      | 15.9 |      | 4.7  |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 55.5 |      | 25.5 |      | 55.5 |      | 15.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 6.2  |      | 3.2  |      | 4.9  |      | 2.1  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 1.8  |      | 0.2  |      | 1.8  |      | 0.0  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      |      | 7.3  |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      |      | A    |

# HCM 6th Signalized Intersection Summary

## 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 39   | 170  | 18   | 82   | 13   | 29   | 3    | 896  | 0    | 85   | 637  | 1    |
| Future Volume (veh/h)         | 39   | 170  | 18   | 82   | 13   | 29   | 3    | 896  | 0    | 85   | 637  | 1    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1560 | 1560 | 1560 | 1522 | 1522 | 1522 | 1585 | 1585 | 0    | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h          | 41   | 177  | 19   | 85   | 14   | 0    | 3    | 933  | 0    | 89   | 664  | 1    |
| Peak Hour Factor              | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %          | 4    | 4    | 4    | 7    | 7    | 7    | 2    | 2    | 0    | 2    | 2    | 2    |
| Cap, veh/h                    | 73   | 273  | 228  | 209  | 305  |      | 7    | 1229 | 0    | 115  | 1478 | 2    |
| Arrive On Green               | 0.05 | 0.17 | 0.17 | 0.07 | 0.20 | 0.00 | 0.00 | 0.41 | 0.00 | 0.08 | 0.48 | 0.48 |
| Sat Flow, veh/h               | 1485 | 1560 | 1303 | 2812 | 1522 | 1290 | 1509 | 3091 | 0    | 1509 | 3085 | 5    |
| Grp Volume(v), veh/h          | 41   | 177  | 19   | 85   | 14   | 0    | 3    | 933  | 0    | 89   | 324  | 341  |
| Grp Sat Flow(s),veh/h/ln      | 1485 | 1560 | 1303 | 1406 | 1522 | 1290 | 1509 | 1506 | 0    | 1509 | 1506 | 1584 |
| Q Serve(g_s), s               | 1.7  | 6.5  | 0.8  | 1.8  | 0.5  | 0.0  | 0.1  | 16.4 | 0.0  | 3.6  | 8.8  | 8.8  |
| Cycle Q Clear(g_c), s         | 1.7  | 6.5  | 0.8  | 1.8  | 0.5  | 0.0  | 0.1  | 16.4 | 0.0  | 3.6  | 8.8  | 8.8  |
| Prop In Lane                  | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 73   | 273  | 228  | 209  | 305  |      | 7    | 1229 | 0    | 115  | 722  | 759  |
| V/C Ratio(X)                  | 0.56 | 0.65 | 0.08 | 0.41 | 0.05 |      | 0.41 | 0.76 | 0.00 | 0.78 | 0.45 | 0.45 |
| Avail Cap(c_a), veh/h         | 1344 | 706  | 589  | 727  | 394  |      | 390  | 4161 | 0    | 390  | 2081 | 2189 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh      | 28.8 | 23.8 | 21.4 | 27.3 | 20.0 | 0.0  | 30.7 | 15.7 | 0.0  | 28.1 | 10.7 | 10.7 |
| Incr Delay (d2), s/veh        | 6.6  | 2.6  | 0.2  | 1.3  | 0.1  | 0.0  | 12.9 | 0.7  | 0.0  | 4.2  | 0.3  | 0.3  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln      | 1.3  | 4.5  | 0.4  | 1.1  | 0.3  | 0.0  | 0.1  | 8.8  | 0.0  | 2.5  | 4.6  | 4.9  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 35.4 | 26.4 | 21.5 | 28.6 | 20.0 | 0.0  | 43.6 | 16.4 | 0.0  | 32.3 | 11.0 | 11.0 |
| LnGrp LOS                     | D    | C    | C    | C    | C    |      | D    | B    | A    | C    | B    | B    |
| Approach Vol, veh/h           |      | 237  |      |      | 99   |      |      | 936  |      |      | 754  |      |
| Approach Delay, s/veh         |      | 27.5 |      |      | 27.4 |      |      | 16.5 |      |      | 13.5 |      |
| Approach LOS                  |      | C    |      |      | C    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 4.3  | 34.2 | 8.6  | 14.8 | 8.7  | 29.8 | 7.0  | 16.4 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.0  | 4.5  | 4.0  | 4.0  | 4.0  | 4.5  | 4.0  | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 16.0 | 85.5 | 16.0 | 28.0 | 16.0 | 85.5 | 56.0 | 16.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 10.8 | 10.8 | 3.8  | 8.5  | 5.6  | 18.4 | 3.7  | 2.5  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 3.7  | 0.2  | 1.0  | 0.1  | 6.8  | 0.1  | 0.0  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 17.2 |
| HCM 6th LOS        | B    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 45: Charleston Blvd (SR 304) & Charleston Beach Rd

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      | ↗    | ↕    |      | ↗    | ↕    | ↗    | ↗    | ↕    | ↕    |
| Traffic Volume (veh/h)       | 23   | 22   | 14   | 8    | 1    | 7    | 12   | 1152 | 67   | 18   | 765  | 17   |
| Future Volume (veh/h)        | 23   | 22   | 14   | 8    | 1    | 7    | 12   | 1152 | 67   | 18   | 765  | 17   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.99 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1572 | 1447 | 1447 | 1447 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 24   | 23   | 15   | 8    | 1    | 7    | 13   | 1213 | 71   | 19   | 805  | 18   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 3    | 3    | 3    | 13   | 13   | 13   | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 36   | 34   | 22   | 42   | 5    | 33   | 29   | 1793 | 800  | 41   | 2421 | 54   |
| Arrive On Green              | 0.06 | 0.06 | 0.06 | 0.03 | 0.03 | 0.03 | 0.02 | 0.60 | 0.60 | 0.03 | 0.60 | 0.60 |
| Sat Flow, veh/h              | 572  | 548  | 357  | 1378 | 155  | 1087 | 1509 | 3011 | 1343 | 1509 | 4015 | 90   |
| Grp Volume(v), veh/h         | 62   | 0    | 0    | 8    | 0    | 8    | 13   | 1213 | 71   | 19   | 508  | 315  |
| Grp Sat Flow(s),veh/h/ln     | 1477 | 0    | 0    | 1378 | 0    | 1243 | 1509 | 1506 | 1343 | 1509 | 1268 | 1569 |
| Q Serve(g_s), s              | 2.6  | 0.0  | 0.0  | 0.4  | 0.0  | 0.4  | 0.5  | 17.3 | 1.4  | 0.8  | 6.3  | 6.3  |
| Cycle Q Clear(g_c), s        | 2.6  | 0.0  | 0.0  | 0.4  | 0.0  | 0.4  | 0.5  | 17.3 | 1.4  | 0.8  | 6.3  | 6.3  |
| Prop In Lane                 | 0.39 |      | 0.24 | 1.00 |      | 0.88 | 1.00 |      | 1.00 | 1.00 |      | 0.06 |
| Lane Grp Cap(c), veh/h       | 93   | 0    | 0    | 42   | 0    | 37   | 29   | 1793 | 800  | 41   | 1529 | 946  |
| V/C Ratio(X)                 | 0.67 | 0.00 | 0.00 | 0.19 | 0.00 | 0.21 | 0.44 | 0.68 | 0.09 | 0.47 | 0.33 | 0.33 |
| Avail Cap(c_a), veh/h        | 373  | 0    | 0    | 1426 | 0    | 1286 | 370  | 4045 | 1804 | 370  | 3406 | 2107 |
| 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 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 29.0 | 0.0  | 0.0  | 29.9 | 0.0  | 30.0 | 30.7 | 8.7  | 5.5  | 30.3 | 6.2  | 6.2  |
| Incr Delay (d2), s/veh       | 8.0  | 0.0  | 0.0  | 1.7  | 0.0  | 2.1  | 3.9  | 0.6  | 0.1  | 3.1  | 0.2  | 0.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.0  | 0.0  | 0.0  | 0.2  | 0.0  | 0.2  | 0.4  | 6.8  | 0.5  | 0.6  | 2.4  | 3.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 37.0 | 0.0  | 0.0  | 31.6 | 0.0  | 32.0 | 34.6 | 9.3  | 5.5  | 33.4 | 6.4  | 6.5  |
| LnGrp LOS                    | D    | A    | A    | C    | A    | C    | C    | A    | A    | C    | A    | A    |
| Approach Vol, veh/h          |      | 62   |      |      | 16   |      |      | 1297 |      |      | 842  |      |
| Approach Delay, s/veh        |      | 37.0 |      |      | 31.8 |      |      | 9.4  |      |      | 7.1  |      |
| Approach LOS                 |      | D    |      |      | C    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.7  | 43.2 |      | 6.4  | 6.2  | 42.7 |      | 8.0  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.0  |      | 4.5  | 4.5  | 5.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 15.5 | 85.0 |      | 65.5 | 15.5 | 85.0 |      | 16.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 12.5 | 8.3  |      | 2.4  | 2.8  | 19.3 |      | 4.6  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 10.0 |      | 0.0  | 0.0  | 18.4 |      | 0.2  |      |      |      |      |

Intersection Summary

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

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 46: Union Ave/Auto Center Blvd & Werner Rd

04/29/2024



| Movement                      | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           | ↖    | ↗     |      | ↖    | ↗    |      | ↖    | ↑    | ↗    | ↖    | ↗    |      |
| Traffic Volume (veh/h)        | 4    | 152   | 3    | 66   | 107  | 104  | 8    | 41   | 118  | 35   | 20   | 4    |
| Future Volume (veh/h)         | 4    | 152   | 3    | 66   | 107  | 104  | 8    | 41   | 118  | 35   | 20   | 4    |
| Initial Q (Qb), veh           | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         |      | No    |      | No   |      | No   |      | No   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1409 | 1409  | 1409 | 1510 | 1510 | 1510 | 1560 | 1560 | 1560 | 1497 | 1497 | 1497 |
| Adj Flow Rate, veh/h          | 5    | 177   | 3    | 77   | 124  | 121  | 9    | 48   | 0    | 41   | 23   | 5    |
| Peak Hour Factor              | 0.86 | 0.86  | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, %          | 16   | 16    | 16   | 8    | 8    | 8    | 4    | 4    | 4    | 9    | 9    | 9    |
| Cap, veh/h                    | 11   | 373   | 6    | 140  | 213  | 208  | 426  | 211  |      | 404  | 161  | 35   |
| Arrive On Green               | 0.01 | 0.27  | 0.27 | 0.10 | 0.30 | 0.30 | 0.14 | 0.14 | 0.00 | 0.14 | 0.14 | 0.14 |
| Sat Flow, veh/h               | 1342 | 1381  | 23   | 1438 | 702  | 685  | 1360 | 1560 | 1322 | 1282 | 1191 | 259  |
| Grp Volume(v), veh/h          | 5    | 0     | 180  | 77   | 0    | 245  | 9    | 48   | 0    | 41   | 0    | 28   |
| Grp Sat Flow(s),veh/h/ln      | 1342 | 0     | 1405 | 1438 | 0    | 1386 | 1360 | 1560 | 1322 | 1282 | 0    | 1450 |
| Q Serve(g_s), s               | 0.1  | 0.0   | 2.9  | 1.4  | 0.0  | 4.1  | 0.2  | 0.7  | 0.0  | 0.8  | 0.0  | 0.5  |
| Cycle Q Clear(g_c), s         | 0.1  | 0.0   | 2.9  | 1.4  | 0.0  | 4.1  | 0.6  | 0.7  | 0.0  | 1.5  | 0.0  | 0.5  |
| Prop In Lane                  | 1.00 |       | 0.02 | 1.00 |      | 0.49 | 1.00 |      | 1.00 | 1.00 |      | 0.18 |
| Lane Grp Cap(c), veh/h        | 11   | 0     | 379  | 140  | 0    | 421  | 426  | 211  |      | 404  | 0    | 197  |
| V/C Ratio(X)                  | 0.46 | 0.00  | 0.47 | 0.55 | 0.00 | 0.58 | 0.02 | 0.23 |      | 0.10 | 0.00 | 0.14 |
| Avail Cap(c_a), veh/h         | 1211 | 0     | 2302 | 1641 | 0    | 1838 | 1544 | 1494 |      | 1694 | 0    | 1656 |
| HCM Platoon Ratio             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 0.00  | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh      | 13.4 | 0.0   | 8.3  | 11.7 | 0.0  | 8.0  | 10.6 | 10.5 | 0.0  | 11.2 | 0.0  | 10.3 |
| Incr Delay (d2), s/veh        | 36.7 | 0.0   | 1.3  | 4.7  | 0.0  | 1.8  | 0.0  | 0.8  | 0.0  | 0.2  | 0.0  | 0.6  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln      | 0.2  | 0.0   | 1.1  | 0.9  | 0.0  | 1.5  | 0.1  | 0.4  | 0.0  | 0.3  | 0.0  | 0.3  |
| Unsig. Movement Delay, s/veh  |      |       |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 50.2 | 0.0   | 9.6  | 16.4 | 0.0  | 9.8  | 10.6 | 11.2 | 0.0  | 11.3 | 0.0  | 10.9 |
| LnGrp LOS                     | D    | A     | A    | B    | A    | A    | B    | B    |      | B    | A    | B    |
| Approach Vol, veh/h           |      | 185   |      |      | 322  |      |      | 57   |      |      | 69   |      |
| Approach Delay, s/veh         |      | 10.7  |      |      | 11.4 |      |      | 11.1 |      |      | 11.2 |      |
| Approach LOS                  |      | B     |      |      | B    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs          | 1    | 2     |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 5.7  | 13.8  |      | 7.7  | 6.6  | 12.8 |      | 7.7  |      |      |      |      |
| Change Period (Y+Rc), s       | 5.5  | * 5.5 |      | 4.0  | 4.0  | 5.5  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 24.5 | * 36  |      | 26.0 | 31.0 | 44.5 |      | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 11.1 | 6.1   |      | 2.7  | 3.4  | 4.9  |      | 3.5  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 2.2   |      | 0.3  | 0.3  | 1.5  |      | 0.4  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 11.1 |
| HCM 6th LOS        | B    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 47: Oyster Bay Ave/Auto Center Way & Werner Rd/Loxie Eagans Blvd

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           | ↖    | ↗    |      | ↖    | ↗    | ↖    | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)        | 7    | 305  | 11   | 69   | 388  | 140  | 10   | 6    | 113  | 64   | 8    | 30   |
| Future Volume (veh/h)         | 7    | 305  | 11   | 69   | 388  | 140  | 10   | 6    | 113  | 64   | 8    | 30   |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         |      | No   |      | No   |      | No   |      | No   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1522 | 1522 | 1522 | 1510 | 1510 | 1510 | 1522 | 1522 | 1522 | 1346 | 1346 | 1346 |
| Adj Flow Rate, veh/h          | 8    | 332  | 12   | 75   | 422  | 0    | 11   | 7    | 0    | 70   | 9    | 0    |
| Peak Hour Factor              | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %          | 7    | 7    | 7    | 8    | 8    | 8    | 7    | 7    | 7    | 21   | 21   | 21   |
| Cap, veh/h                    | 19   | 809  | 29   | 137  | 1052 |      | 421  | 183  |      | 405  | 162  |      |
| Arrive On Green               | 0.01 | 0.28 | 0.28 | 0.10 | 0.37 | 0.00 | 0.12 | 0.12 | 0.00 | 0.12 | 0.12 | 0.00 |
| Sat Flow, veh/h               | 1450 | 2847 | 103  | 1438 | 2868 | 1279 | 1347 | 1522 | 0    | 1194 | 1346 | 0    |
| Grp Volume(v), veh/h          | 8    | 168  | 176  | 75   | 422  | 0    | 11   | 7    | 0    | 70   | 9    | 0    |
| Grp Sat Flow(s),veh/h/ln      | 1450 | 1446 | 1503 | 1438 | 1434 | 1279 | 1347 | 1522 | 0    | 1194 | 1346 | 0    |
| Q Serve(g_s), s               | 0.1  | 2.5  | 2.6  | 1.3  | 2.9  | 0.0  | 0.2  | 0.1  | 0.0  | 1.5  | 0.2  | 0.0  |
| Cycle Q Clear(g_c), s         | 0.1  | 2.5  | 2.6  | 1.3  | 2.9  | 0.0  | 0.4  | 0.1  | 0.0  | 1.6  | 0.2  | 0.0  |
| Prop In Lane                  | 1.00 |      | 0.07 | 1.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h        | 19   | 411  | 427  | 137  | 1052 |      | 421  | 183  |      | 405  | 162  |      |
| V/C Ratio(X)                  | 0.43 | 0.41 | 0.41 | 0.55 | 0.40 |      | 0.03 | 0.04 |      | 0.17 | 0.06 |      |
| Avail Cap(c_a), veh/h         | 564  | 2169 | 2255 | 1624 | 6426 |      | 1780 | 1719 |      | 1610 | 1521 |      |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh      | 13.2 | 7.8  | 7.8  | 11.7 | 6.3  | 0.0  | 10.7 | 10.5 | 0.0  | 11.2 | 10.5 | 0.0  |
| Incr Delay (d2), s/veh        | 20.4 | 0.9  | 0.9  | 4.7  | 0.3  | 0.0  | 0.1  | 0.2  | 0.0  | 0.4  | 0.3  | 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(95%),veh/lr      | 0.3  | 1.0  | 1.0  | 0.9  | 0.8  | 0.0  | 0.1  | 0.1  | 0.0  | 0.6  | 0.1  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 33.6 | 8.8  | 8.7  | 16.4 | 6.6  | 0.0  | 10.7 | 10.7 | 0.0  | 11.6 | 10.8 | 0.0  |
| LnGrp LOS                     | C    | A    | A    | B    | A    |      | B    | B    |      | B    | B    |      |
| Approach Vol, veh/h           |      | 352  |      |      | 497  |      |      | 18   |      |      | 79   |      |
| Approach Delay, s/veh         |      | 9.3  |      |      | 8.1  |      |      | 10.7 |      |      | 11.5 |      |
| Approach LOS                  |      | A    |      |      | A    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 4.8  | 14.4 |      | 7.7  | 7.1  | 12.2 |      | 7.7  |      |      |      |      |
| Change Period (Y+Rc), s       | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s   | 60.5 | 60.5 |      | 30.5 | 30.5 | 40.5 |      | 30.5 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 4.9  | 4.9  |      | 2.4  | 3.3  | 4.6  |      | 3.6  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 3.7  |      | 0.1  | 0.3  | 3.0  |      | 0.5  |      |      |      |      |

### Intersection Summary

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

### Notes

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

HCM 6th Signalized Intersection Summary  
 48: National Ave & Loxie Eagans Blvd

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 247  | 223  | 81   | 6    | 92   | 2    | 101  | 51   | 9    | 10   | 29   | 183  |
| Future Volume (veh/h)         | 247  | 223  | 81   | 6    | 92   | 2    | 101  | 51   | 9    | 10   | 29   | 183  |
| 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 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1560 | 1560 | 1560 | 1535 | 1535 | 1535 | 1560 | 1560 | 1560 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h          | 247  | 225  | 82   | 6    | 93   | 2    | 102  | 52   | 9    | 10   | 29   | 185  |
| Peak Hour Factor              | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Percent Heavy Veh, %          | 4    | 4    | 4    | 6    | 6    | 6    | 4    | 4    | 4    | 5    | 5    | 5    |
| Cap, veh/h                    | 293  | 665  | 235  | 14   | 363  | 8    | 136  | 69   | 179  | 70   | 203  | 234  |
| Arrive On Green               | 0.20 | 0.31 | 0.31 | 0.01 | 0.12 | 0.12 | 0.14 | 0.14 | 0.14 | 0.18 | 0.18 | 0.18 |
| Sat Flow, veh/h               | 1485 | 2132 | 752  | 1462 | 2919 | 63   | 1000 | 510  | 1319 | 392  | 1136 | 1309 |
| Grp Volume(v), veh/h          | 247  | 154  | 153  | 6    | 46   | 49   | 154  | 0    | 9    | 39   | 0    | 185  |
| Grp Sat Flow(s),veh/h/ln      | 1485 | 1482 | 1402 | 1462 | 1458 | 1523 | 1510 | 0    | 1319 | 1528 | 0    | 1309 |
| Q Serve(g_s), s               | 7.9  | 3.9  | 4.2  | 0.2  | 1.4  | 1.4  | 4.9  | 0.0  | 0.3  | 1.1  | 0.0  | 6.7  |
| Cycle Q Clear(g_c), s         | 7.9  | 3.9  | 4.2  | 0.2  | 1.4  | 1.4  | 4.9  | 0.0  | 0.3  | 1.1  | 0.0  | 6.7  |
| Prop In Lane                  | 1.00 |      | 0.54 | 1.00 |      | 0.04 | 0.66 |      | 1.00 | 0.26 |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 293  | 462  | 438  | 14   | 181  | 189  | 205  | 0    | 179  | 273  | 0    | 234  |
| V/C Ratio(X)                  | 0.84 | 0.33 | 0.35 | 0.43 | 0.26 | 0.26 | 0.75 | 0.00 | 0.05 | 0.14 | 0.00 | 0.79 |
| Avail Cap(c_a), veh/h         | 376  | 1260 | 1192 | 177  | 1047 | 1094 | 519  | 0    | 454  | 526  | 0    | 450  |
| 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      | 19.1 | 13.0 | 13.1 | 24.3 | 19.6 | 19.6 | 20.6 | 0.0  | 18.6 | 17.1 | 0.0  | 19.4 |
| Incr Delay (d2), s/veh        | 12.8 | 0.4  | 0.5  | 19.3 | 0.7  | 0.7  | 5.5  | 0.0  | 0.1  | 0.2  | 0.0  | 5.9  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln      | 6.1  | 2.1  | 2.1  | 0.2  | 0.8  | 0.9  | 3.4  | 0.0  | 0.2  | 0.7  | 0.0  | 4.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 31.9 | 13.5 | 13.6 | 43.6 | 20.3 | 20.3 | 26.1 | 0.0  | 18.7 | 17.3 | 0.0  | 25.4 |
| LnGrp LOS                     | C    | B    | B    | D    | C    | C    | C    | A    | B    | B    | A    | C    |
| Approach Vol, veh/h           |      | 554  |      |      | 101  |      |      | 163  |      |      | 224  |      |
| Approach Delay, s/veh         |      | 21.7 |      |      | 21.7 |      |      | 25.7 |      |      | 24.0 |      |
| Approach LOS                  |      | C    |      |      | C    |      |      | C    |      |      | C    |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 5.0  | 19.9 |      | 13.3 | 14.3 | 10.6 |      | 11.2 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s   | 42.0 | 42.0 |      | 17.0 | 12.5 | 35.5 |      | 17.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 12.2 | 6.2  |      | 8.7  | 9.9  | 3.4  |      | 6.9  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 1.9  |      | 0.5  | 0.2  | 0.5  |      | 0.6  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 22.8 |
| HCM 6th LOS        | C    |

**Intersection**

|                           |     |
|---------------------------|-----|
| Intersection Delay, s/veh | 8.2 |
| Intersection LOS          | A   |

| Movement            | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | ↔    |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h  | 67   | 5    | 98   | 0    | 0    | 50   |
| Future Vol, veh/h   | 67   | 5    | 98   | 0    | 0    | 50   |
| Peak Hour Factor    | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles, %   | 3    | 3    | 10   | 10   | 24   | 24   |
| Mvmt Flow           | 88   | 7    | 129  | 0    | 0    | 66   |
| Number of Lanes     | 1    | 0    | 1    | 0    | 0    | 1    |

| Approach                   | WB  | NB  | SB  |
|----------------------------|-----|-----|-----|
| Opposing Approach          |     | SB  | NB  |
| Opposing Lanes             | 0   | 1   | 1   |
| Conflicting Approach Left  | NB  |     | WB  |
| Conflicting Lanes Left     | 1   | 0   | 1   |
| Conflicting Approach Right | SB  | WB  |     |
| Conflicting Lanes Right    | 1   | 1   | 0   |
| HCM Control Delay          | 8.2 | 8.2 | 8.1 |
| HCM LOS                    | A   | A   | A   |

| Lane                   | NBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, %            | 0%    | 93%   | 0%    |
| Vol Thru, %            | 100%  | 0%    | 100%  |
| Vol Right, %           | 0%    | 7%    | 0%    |
| Sign Control           | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 98    | 72    | 50    |
| LT Vol                 | 0     | 67    | 0     |
| Through Vol            | 98    | 0     | 50    |
| RT Vol                 | 0     | 5     | 0     |
| Lane Flow Rate         | 129   | 95    | 66    |
| Geometry Grp           | 1     | 1     | 1     |
| Degree of Util (X)     | 0.154 | 0.12  | 0.085 |
| Departure Headway (Hd) | 4.286 | 4.552 | 4.676 |
| Convergence, Y/N       | Yes   | Yes   | Yes   |
| Cap                    | 824   | 792   | 770   |
| Service Time           | 2.382 | 2.554 | 2.682 |
| HCM Lane V/C Ratio     | 0.157 | 0.12  | 0.086 |
| HCM Control Delay      | 8.2   | 8.2   | 8.1   |
| HCM Lane LOS           | A     | A     | A     |
| HCM 95th-tile Q        | 0.5   | 0.4   | 0.3   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.8  |      |      |      |      |      |
| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
| Lane Configurations      | T    |      | T    |      | T    |      |
| Traffic Vol, veh/h       | 37   | 73   | 58   | 129  | 142  | 96   |
| Future Vol, veh/h        | 37   | 73   | 58   | 129  | 142  | 96   |
| Conflicting Peds, #/hr   | 2    | 2    | 2    | 0    | 0    | 2    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 67   | 67   | 67   | 67   | 67   | 67   |
| Heavy Vehicles, %        | 7    | 7    | 5    | 5    | 4    | 4    |
| Mvmt Flow                | 55   | 109  | 87   | 193  | 212  | 143  |

| Major/Minor          | Minor2 | Major1 |       | Major2 |   |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 655    | 288    | 357   | 0      | 0 |
| Stage 1              | 286    | -      | -     | -      | - |
| Stage 2              | 369    | -      | -     | -      | - |
| Critical Hdwy        | 6.47   | 6.27   | 4.15  | -      | - |
| Critical Hdwy Stg 1  | 5.47   | -      | -     | -      | - |
| Critical Hdwy Stg 2  | 5.47   | -      | -     | -      | - |
| Follow-up Hdwy       | 3.563  | 3.363  | 2.245 | -      | - |
| Pot Cap-1 Maneuver   | 423    | 739    | 1185  | -      | - |
| Stage 1              | 751    | -      | -     | -      | - |
| Stage 2              | 688    | -      | -     | -      | - |
| Platoon blocked, %   |        |        |       | -      | - |
| Mov Cap-1 Maneuver   | 387    | 737    | 1183  | -      | - |
| Mov Cap-2 Maneuver   | 387    | -      | -     | -      | - |
| Stage 1              | 688    | -      | -     | -      | - |
| Stage 2              | 687    | -      | -     | -      | - |

| Approach             | EB | NB  | SB |
|----------------------|----|-----|----|
| HCM Control Delay, s | 14 | 2.6 | 0  |
| HCM LOS              | B  |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1183  | -   | 565   | -   | -   |
| HCM Lane V/C Ratio    | 0.073 | -   | 0.291 | -   | -   |
| HCM Control Delay (s) | 8.3   | 0   | 14    | -   | -   |
| HCM Lane LOS          | A     | A   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.2   | -   | 1.2   | -   | -   |

| Intersection              |     |
|---------------------------|-----|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS          | A   |

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h  | 14   | 64   | 1    | 0    | 91   | 10   | 0    | 4    | 1    | 0    | 2    | 24   |
| Future Vol, veh/h   | 14   | 64   | 1    | 0    | 91   | 10   | 0    | 4    | 1    | 0    | 2    | 24   |
| Peak Hour Factor    | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Heavy Vehicles, %   | 3    | 3    | 3    | 1    | 1    | 1    | 0    | 0    | 0    | 8    | 8    | 8    |
| Mvmt Flow           | 19   | 88   | 1    | 0    | 125  | 14   | 0    | 5    | 1    | 0    | 3    | 33   |
| Number of Lanes     | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    |

| Approach                   | EB  | WB  | NB  | SB  |
|----------------------------|-----|-----|-----|-----|
| Opposing Approach          | WB  | EB  | SB  | NB  |
| Opposing Lanes             | 1   | 1   | 1   | 1   |
| Conflicting Approach Left  | SB  | NB  | EB  | WB  |
| Conflicting Lanes Left     | 1   | 1   | 1   | 1   |
| Conflicting Approach Right | NB  | SB  | WB  | EB  |
| Conflicting Lanes Right    | 1   | 1   | 1   | 1   |
| HCM Control Delay          | 7.8 | 7.8 | 7.4 | 7.2 |
| HCM LOS                    | A   | A   | A   | A   |

| Lane                   | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, %            | 0%    | 18%   | 0%    | 0%    |
| Vol Thru, %            | 80%   | 81%   | 90%   | 8%    |
| Vol Right, %           | 20%   | 1%    | 10%   | 92%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 5     | 79    | 101   | 26    |
| LT Vol                 | 0     | 14    | 0     | 0     |
| Through Vol            | 4     | 64    | 91    | 2     |
| RT Vol                 | 1     | 1     | 10    | 24    |
| Lane Flow Rate         | 7     | 108   | 138   | 36    |
| Geometry Grp           | 1     | 1     | 1     | 1     |
| Degree of Util (X)     | 0.008 | 0.125 | 0.154 | 0.04  |
| Departure Headway (Hd) | 4.351 | 4.158 | 4.013 | 4.021 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 827   | 858   | 890   | 896   |
| Service Time           | 2.352 | 2.204 | 2.058 | 2.021 |
| HCM Lane V/C Ratio     | 0.008 | 0.126 | 0.155 | 0.04  |
| HCM Control Delay      | 7.4   | 7.8   | 7.8   | 7.2   |
| HCM Lane LOS           | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0     | 0.4   | 0.5   | 0.1   |

Intersection

Intersection Delay, s/veh 8.6

Intersection LOS A

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Vol, veh/h  | 5    | 21   | 98   | 8    | 11   | 0    | 75   | 44   | 8    | 4    | 21   | 7    |
| Future Vol, veh/h   | 5    | 21   | 98   | 8    | 11   | 0    | 75   | 44   | 8    | 4    | 21   | 7    |
| Peak Hour Factor    | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles, %   | 5    | 5    | 5    | 5    | 5    | 5    | 2    | 2    | 2    | 19   | 19   | 19   |
| Mvmt Flow           | 7    | 28   | 129  | 11   | 14   | 0    | 99   | 58   | 11   | 5    | 28   | 9    |
| Number of Lanes     | 1    | 1    | 0    | 0    | 1    | 0    | 1    | 1    | 0    | 1    | 1    | 0    |

| Approach                   | EB  | WB  | NB  | SB  |
|----------------------------|-----|-----|-----|-----|
| Opposing Approach          | WB  | EB  | SB  | NB  |
| Opposing Lanes             | 1   | 2   | 2   | 2   |
| Conflicting Approach Left  | SB  | NB  | EB  | WB  |
| Conflicting Lanes Left     | 2   | 2   | 2   | 1   |
| Conflicting Approach Right | NB  | SB  | WB  | EB  |
| Conflicting Lanes Right    | 2   | 2   | 1   | 2   |
| HCM Control Delay          | 8.4 | 8.6 | 8.8 | 8.4 |
| HCM LOS                    | A   | A   | A   | A   |

| Lane                   | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 100%  | 0%    | 100%  | 0%    | 42%   | 100%  | 0%    |
| Vol Thru, %            | 0%    | 85%   | 0%    | 18%   | 58%   | 0%    | 75%   |
| Vol Right, %           | 0%    | 15%   | 0%    | 82%   | 0%    | 0%    | 25%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 75    | 52    | 5     | 119   | 19    | 4     | 28    |
| LT Vol                 | 75    | 0     | 5     | 0     | 8     | 4     | 0     |
| Through Vol            | 0     | 44    | 0     | 21    | 11    | 0     | 21    |
| RT Vol                 | 0     | 8     | 0     | 98    | 0     | 0     | 7     |
| Lane Flow Rate         | 99    | 68    | 7     | 157   | 25    | 5     | 37    |
| Geometry Grp           | 5     | 5     | 5     | 5     | 4b    | 5     | 5     |
| Degree of Util (X)     | 0.152 | 0.094 | 0.01  | 0.199 | 0.038 | 0.009 | 0.054 |
| Departure Headway (Hd) | 5.533 | 4.923 | 5.662 | 4.582 | 5.404 | 5.954 | 5.275 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 649   | 729   | 634   | 784   | 663   | 602   | 679   |
| Service Time           | 3.257 | 2.647 | 3.381 | 2.301 | 3.431 | 3.682 | 3.003 |
| HCM Lane V/C Ratio     | 0.153 | 0.093 | 0.011 | 0.2   | 0.038 | 0.008 | 0.054 |
| HCM Control Delay      | 9.3   | 8.2   | 8.4   | 8.4   | 8.6   | 8.7   | 8.3   |
| HCM Lane LOS           | A     | A     | A     | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0.5   | 0.3   | 0     | 0.7   | 0.1   | 0     | 0.2   |

# MOVEMENT SUMMARY

**Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2023 AM)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

Existing RAB  
 Site Category: (None)  
 Roundabout

| Vehicle Movement Performance |      |           |              |     |               |     |           |             |                  |                   |           |                |                     |             |      |
|------------------------------|------|-----------|--------------|-----|---------------|-----|-----------|-------------|------------------|-------------------|-----------|----------------|---------------------|-------------|------|
| Mov ID                       | Turn | Mov Class | Demand Flows |     | Arrival Flows |     | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |      |
|                              |      |           | [ Total HV ] | %   | [ Total HV ]  | %   | v/c       | sec         |                  | [ Veh. ]          | [ Dist ]  |                |                     | mph         |      |
|                              |      |           | veh/h        |     | veh/h         |     |           |             |                  | veh               | ft        |                |                     |             |      |
| East: Harkins St (WB)        |      |           |              |     |               |     |           |             |                  |                   |           |                |                     |             |      |
| 6                            | T1   | All MCs   | 193          | 1.7 | 193           | 1.7 | 0.189     | 5.9         | LOS A            | 0.9               | 22.9      | 0.38           | 0.52                | 0.38        | 34.7 |
| 16                           | R2   | All MCs   | 20           | 1.7 | 20            | 1.7 | 0.189     | 5.6         | LOS A            | 0.9               | 22.9      | 0.38           | 0.52                | 0.38        | 34.4 |
| Approach                     |      |           | 212          | 1.7 | 212           | 1.7 | 0.189     | 5.8         | LOS A            | 0.9               | 22.9      | 0.38           | 0.52                | 0.38        | 34.7 |
| North: Wheaton Way (SB)      |      |           |              |     |               |     |           |             |                  |                   |           |                |                     |             |      |
| 7u                           | U    | All MCs   | 1            | 3.1 | 1             | 3.1 | 0.278     | 12.0        | LOS B            | 1.5               | 39.4      | 0.40           | 0.56                | 0.40        | 34.2 |
| 7                            | L2   | All MCs   | 16           | 3.1 | 16            | 3.1 | 0.278     | 10.0        | LOS B            | 1.5               | 39.4      | 0.40           | 0.56                | 0.40        | 34.2 |
| 14                           | R2   | All MCs   | 299          | 3.1 | 299           | 3.1 | 0.278     | 5.5         | LOS A            | 1.5               | 39.4      | 0.40           | 0.56                | 0.40        | 34.5 |
| Approach                     |      |           | 316          | 3.1 | 316           | 3.1 | 0.278     | 5.8         | LOS A            | 1.5               | 39.4      | 0.40           | 0.56                | 0.40        | 34.5 |
| West: Manette Bridge (EB)    |      |           |              |     |               |     |           |             |                  |                   |           |                |                     |             |      |
| 5                            | L2   | All MCs   | 231          | 6.2 | 231           | 6.2 | 0.283     | 9.1         | LOS A            | 1.6               | 42.8      | 0.11           | 0.58                | 0.11        | 33.4 |
| 2                            | T1   | All MCs   | 130          | 6.2 | 130           | 6.2 | 0.283     | 4.9         | LOS A            | 1.6               | 42.8      | 0.11           | 0.58                | 0.11        | 34.0 |
| Approach                     |      |           | 360          | 6.2 | 360           | 6.2 | 0.283     | 7.6         | LOS A            | 1.6               | 42.8      | 0.11           | 0.58                | 0.11        | 33.6 |
| All Vehicles                 |      |           | 889          | 4.0 | 889           | 4.0 | 0.283     | 6.5         | LOS A            | 1.6               | 42.8      | 0.28           | 0.56                | 0.28        | 34.2 |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

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

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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.

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#554-1896-192\LOS\2023.sip9

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 7.6  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      |      |      |      | ↕    |      |      |      |      |      |      | ↕    |
| Traffic Vol, veh/h       | 0    | 0    | 0    | 104  | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 43   |
| Future Vol, veh/h        | 0    | 0    | 0    | 104  | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 43   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 5    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 3    | 3    | 3    | 0    | 0    | 0    | 9    | 9    | 9    |
| Mvmt Flow                | 0    | 0    | 0    | 117  | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 48   |

| Major/Minor          | Major2 |   |   | Minor2 |   |       |
|----------------------|--------|---|---|--------|---|-------|
| Conflicting Flow All | 4      | 0 | 0 | -      | - | 8     |
| Stage 1              | -      | - | - | -      | - | -     |
| Stage 2              | -      | - | - | -      | - | -     |
| Critical Hdwy        | 4.13   | - | - | -      | - | 6.29  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | -     |
| Follow-up Hdwy       | 2.227  | - | - | -      | - | 3.381 |
| Pot Cap-1 Maneuver   | 1611   | - | 0 | 0      | 0 | 1054  |
| Stage 1              | -      | - | 0 | 0      | 0 | -     |
| Stage 2              | -      | - | 0 | 0      | 0 | -     |
| Platoon blocked, %   | -      | - | - | -      | - | -     |
| Mov Cap-1 Maneuver   | 1611   | - | - | -      | 0 | 1054  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | 0 | -     |
| Stage 1              | -      | - | - | -      | 0 | -     |
| Stage 2              | -      | - | - | -      | 0 | -     |

| Approach             | WB  | SB  |
|----------------------|-----|-----|
| HCM Control Delay, s | 7.2 | 8.6 |
| HCM LOS              |     | A   |

| Minor Lane/Major Mvmt | WBL   | WBT | SBLn1 |
|-----------------------|-------|-----|-------|
| Capacity (veh/h)      | 1611  | -   | 1054  |
| HCM Lane V/C Ratio    | 0.073 | -   | 0.046 |
| HCM Control Delay (s) | 7.4   | 0   | 8.6   |
| HCM Lane LOS          | A     | A   | A     |
| HCM 95th %tile Q(veh) | 0.2   | -   | 0.1   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.6  |      |      |      |      |      |
| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 20   | 22   | 79   | 13   | 9    | 163  |
| Future Vol, veh/h        | 20   | 22   | 79   | 13   | 9    | 163  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | 100  | -    |
| Veh in Median Storage, # | 0    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 81   | 81   | 81   | 81   | 81   | 81   |
| Heavy Vehicles, %        | 5    | 5    | 3    | 3    | 1    | 1    |
| Mvmt Flow                | 25   | 27   | 98   | 16   | 11   | 201  |

| Major/Minor          | Minor1 | Major1 | Major2 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 329    | 106    | 0      | 0 | 114   |
| Stage 1              | 106    | -      | -      | - | -     |
| Stage 2              | 223    | -      | -      | - | -     |
| Critical Hdwy        | 6.45   | 6.25   | -      | - | 4.11  |
| Critical Hdwy Stg 1  | 5.45   | -      | -      | - | -     |
| Critical Hdwy Stg 2  | 5.45   | -      | -      | - | -     |
| Follow-up Hdwy       | 3.545  | 3.345  | -      | - | 2.209 |
| Pot Cap-1 Maneuver   | 659    | 940    | -      | - | 1481  |
| Stage 1              | 911    | -      | -      | - | -     |
| Stage 2              | 807    | -      | -      | - | -     |
| Platoon blocked, %   |        |        |        |   |       |
| Mov Cap-1 Maneuver   | 654    | 940    | -      | - | 1481  |
| Mov Cap-2 Maneuver   | 654    | -      | -      | - | -     |
| Stage 1              | 911    | -      | -      | - | -     |
| Stage 2              | 801    | -      | -      | - | -     |

| Approach             | WB | NB | SB  |
|----------------------|----|----|-----|
| HCM Control Delay, s | 10 | 0  | 0.4 |
| HCM LOS              | B  |    |     |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 778   | 1481  |
| HCM Lane V/C Ratio    | -   | -        | 0.067 | 0.008 |
| HCM Control Delay (s) | -   | -        | 10    | 7.4   |
| HCM Lane LOS          | -   | -        | B     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.2   | 0     |

| Intersection              |     |
|---------------------------|-----|
| Intersection Delay, s/veh | 9.6 |
| Intersection LOS          | A   |

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↶    | ↷    |      | ↶    | ↷    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h  | 3    | 151  | 46   | 17   | 196  | 4    | 10   | 3    | 7    | 5    | 11   | 10   |
| Future Vol, veh/h   | 3    | 151  | 46   | 17   | 196  | 4    | 10   | 3    | 7    | 5    | 11   | 10   |
| Peak Hour Factor    | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Heavy Vehicles, %   | 4    | 4    | 4    | 6    | 6    | 6    | 10   | 10   | 10   | 0    | 0    | 0    |
| Mvmt Flow           | 4    | 180  | 55   | 20   | 233  | 5    | 12   | 4    | 8    | 6    | 13   | 12   |
| Number of Lanes     | 1    | 1    | 0    | 1    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    |

| Approach                   | EB  | WB  | NB  | SB  |
|----------------------------|-----|-----|-----|-----|
| Opposing Approach          | WB  | EB  | SB  | NB  |
| Opposing Lanes             | 2   | 2   | 1   | 1   |
| Conflicting Approach Left  | SB  | NB  | EB  | WB  |
| Conflicting Lanes Left     | 1   | 1   | 2   | 2   |
| Conflicting Approach Right | NB  | SB  | WB  | EB  |
| Conflicting Lanes Right    | 1   | 1   | 2   | 2   |
| HCM Control Delay          | 9.6 | 9.9 | 8.4 | 8.2 |
| HCM LOS                    | A   | A   | A   | A   |

| Lane                   | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 50%   | 100%  | 0%    | 100%  | 0%    | 19%   |
| Vol Thru, %            | 15%   | 0%    | 77%   | 0%    | 98%   | 42%   |
| Vol Right, %           | 35%   | 0%    | 23%   | 0%    | 2%    | 38%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 20    | 3     | 197   | 17    | 200   | 26    |
| LT Vol                 | 10    | 3     | 0     | 17    | 0     | 5     |
| Through Vol            | 3     | 0     | 151   | 0     | 196   | 11    |
| RT Vol                 | 7     | 0     | 46    | 0     | 4     | 10    |
| Lane Flow Rate         | 24    | 4     | 235   | 20    | 238   | 31    |
| Geometry Grp           | 2     | 5     | 5     | 5     | 5     | 2     |
| Degree of Util (X)     | 0.034 | 0.005 | 0.309 | 0.03  | 0.324 | 0.042 |
| Departure Headway (Hd) | 5.176 | 5.416 | 4.75  | 5.422 | 4.906 | 4.913 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 692   | 663   | 760   | 662   | 736   | 730   |
| Service Time           | 3.202 | 3.131 | 2.465 | 3.137 | 2.621 | 2.937 |
| HCM Lane V/C Ratio     | 0.035 | 0.006 | 0.309 | 0.03  | 0.323 | 0.042 |
| HCM Control Delay      | 8.4   | 8.2   | 9.6   | 8.3   | 10    | 8.2   |
| HCM Lane LOS           | A     | A     | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0.1   | 0     | 1.3   | 0.1   | 1.4   | 0.1   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |       |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Int Delay, s/veh         | 4.9  |      |      |      |      |      |      |      |      |      |      |       |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR   |
| Lane Configurations      |      |      |      |      |      | ↔    | ↔    | ↔    |      |      | ↔    |       |
| Traffic Vol, veh/h       | 0    | 0    | 0    | 61   | 1    | 283  | 26   | 102  | 0    | 0    | 107  | 208   |
| Future Vol, veh/h        | 0    | 0    | 0    | 61   | 1    | 283  | 26   | 102  | 0    | 0    | 107  | 208   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Sign Control             | Free | Free | Free | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free  |
| RT Channelized           | -    | -    | None | -    | -    | Stop | -    | -    | None | -    | -    | Yield |
| Storage Length           | -    | -    | -    | -    | -    | 0    | -    | -    | -    | -    | -    | -     |
| Veh in Median Storage, # | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     |
| Peak Hour Factor         | 91   | 91   | 91   | 91   | 91   | 91   | 91   | 91   | 91   | 91   | 91   | 91    |
| Heavy Vehicles, %        | 0    | 0    | 0    | 3    | 3    | 3    | 5    | 5    | 5    | 4    | 4    | 4     |
| Mvmt Flow                | 0    | 0    | 0    | 67   | 1    | 311  | 29   | 112  | 0    | 0    | 118  | 229   |

| Major/Minor          | Minor1 | Major1 | Major2 |       |   |   |   |
|----------------------|--------|--------|--------|-------|---|---|---|
| Conflicting Flow All | 288    | 288    | 112    | 118   | 0 | - | - |
| Stage 1              | 170    | 170    | -      | -     | - | - | - |
| Stage 2              | 118    | 118    | -      | -     | - | - | - |
| Critical Hdwy        | 6.43   | 6.53   | 6.23   | 4.15  | - | - | - |
| Critical Hdwy Stg 1  | 5.43   | 5.53   | -      | -     | - | - | - |
| Critical Hdwy Stg 2  | 5.43   | 5.53   | -      | -     | - | - | - |
| Follow-up Hdwy       | 3.527  | 4.027  | 3.327  | 2.245 | - | - | - |
| Pot Cap-1 Maneuver   | 700    | 620    | 938    | 1452  | - | 0 | 0 |
| Stage 1              | 857    | 756    | -      | -     | - | 0 | 0 |
| Stage 2              | 905    | 796    | -      | -     | - | 0 | 0 |
| Platoon blocked, %   |        |        |        |       | - | - | - |
| Mov Cap-1 Maneuver   | 685    | 0      | 938    | 1452  | - | - | - |
| Mov Cap-2 Maneuver   | 685    | 0      | -      | -     | - | - | - |
| Stage 1              | 839    | 0      | -      | -     | - | - | - |
| Stage 2              | 905    | 0      | -      | -     | - | - | - |

| Approach             | WB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 10.7 | 1.5 | 0  |
| HCM LOS              | B    |     |    |

| Minor Lane/Major Mvmt | NBL  | NBTWBLn1 | WBLn2 | SBT   | SBR |
|-----------------------|------|----------|-------|-------|-----|
| Capacity (veh/h)      | 1452 | -        | 685   | 938   | -   |
| HCM Lane V/C Ratio    | 0.02 | -        | 0.099 | 0.332 | -   |
| HCM Control Delay (s) | 7.5  | 0        | 10.8  | 10.7  | -   |
| HCM Lane LOS          | A    | A        | B     | B     | -   |
| HCM 95th %tile Q(veh) | 0.1  | -        | 0.3   | 1.5   | -   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 6    |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      |      |      |      | ↔    |      |      | ↔    |      |
| Traffic Vol, veh/h       | 93   | 1    | 6    | 0    | 0    | 0    | 0    | 67   | 72   | 158  | 89   | 0    |
| Future Vol, veh/h        | 93   | 1    | 6    | 0    | 0    | 0    | 0    | 67   | 72   | 158  | 89   | 0    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 1    |
| Sign Control             | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 87   | 87   | 87   | 87   | 87   | 87   | 87   | 87   | 87   | 87   | 87   | 87   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 0    | 0    | 0    | 3    | 3    | 3    | 4    | 4    | 4    |
| Mvmt Flow                | 107  | 1    | 7    | 0    | 0    | 0    | 0    | 77   | 83   | 182  | 102  | 0    |

| Major/Minor          | Minor2 |       |       | Major1 |   |   | Major2 |   |   |
|----------------------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 585    | 626   | 102   | -      | 0 | 0 | 160    | 0 | 0 |
| Stage 1              | 466    | 466   | -     | -      | - | - | -      | - | - |
| Stage 2              | 119    | 160   | -     | -      | - | - | -      | - | - |
| Critical Hdwy        | 6.42   | 6.52  | 6.22  | -      | - | - | 4.14   | - | - |
| Critical Hdwy Stg 1  | 5.42   | 5.52  | -     | -      | - | - | -      | - | - |
| Critical Hdwy Stg 2  | 5.42   | 5.52  | -     | -      | - | - | -      | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318 | -      | - | - | 2.236  | - | - |
| Pot Cap-1 Maneuver   | 473    | 401   | 953   | 0      | - | - | 1407   | - | 0 |
| Stage 1              | 632    | 562   | -     | 0      | - | - | -      | - | 0 |
| Stage 2              | 906    | 766   | -     | 0      | - | - | -      | - | 0 |
| Platoon blocked, %   |        |       |       |        |   |   |        |   |   |
| Mov Cap-1 Maneuver   | 408    | 0     | 953   | -      | - | - | 1407   | - | - |
| Mov Cap-2 Maneuver   | 408    | 0     | -     | -      | - | - | -      | - | - |
| Stage 1              | 632    | 0     | -     | -      | - | - | -      | - | - |
| Stage 2              | 782    | 0     | -     | -      | - | - | -      | - | - |

| Approach             | EB   | NB | SB  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 16.7 | 0  | 5.1 |
| HCM LOS              | C    |    |     |

| Minor Lane/Major Mvmt | NBT | NBR | EBLn1 | SBL   | SBT |
|-----------------------|-----|-----|-------|-------|-----|
| Capacity (veh/h)      | -   | -   | 423   | 1407  | -   |
| HCM Lane V/C Ratio    | -   | -   | 0.272 | 0.129 | -   |
| HCM Control Delay (s) | -   | -   | 16.7  | 7.9   | 0   |
| HCM Lane LOS          | -   | -   | C     | A     | A   |
| HCM 95th %tile Q(veh) | -   | -   | 1.1   | 0.4   | -   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 11.7 |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   | ↑    |      | ↑↑   |      |      |      |      |      | ↑    | ↑    |
| Traffic Vol, veh/h       | 0    | 381  | 114  | 135  | 450  | 0    | 0    | 0    | 0    | 154  | 0    | 133  |
| Future Vol, veh/h        | 0    | 381  | 114  | 135  | 450  | 0    | 0    | 0    | 0    | 154  | 0    | 133  |
| Conflicting Peds, #/hr   | 1    | 0    | 0    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | Free | -    | -    | None | -    | -    | None | -    | -    | Stop |
| Storage Length           | -    | -    | 175  | -    | -    | -    | -    | -    | -    | -    | -    | 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, %        | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 414  | 124  | 147  | 489  | 0    | 0    | 0    | 0    | 167  | 0    | 145  |

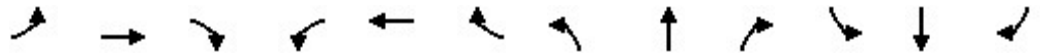
| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor2 |      |      |
|----------------------|--------|---|---|--------|---|---|--------|------|------|
| Conflicting Flow All | -      | 0 | - | 414    | 0 | 0 | 990    | 1197 | 245  |
| Stage 1              | -      | - | - | -      | - | - | 783    | 783  | -    |
| Stage 2              | -      | - | - | -      | - | - | 207    | 414  | -    |
| Critical Hdwy        | -      | - | - | 4.14   | - | - | 6.84   | 6.54 | 6.94 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 5.84   | 5.54 | -    |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 5.84   | 5.54 | -    |
| Follow-up Hdwy       | -      | - | - | 2.22   | - | - | 3.52   | 4.02 | 3.32 |
| Pot Cap-1 Maneuver   | 0      | - | 0 | 1141   | - | 0 | 243    | 185  | 755  |
| Stage 1              | 0      | - | 0 | -      | - | 0 | 411    | 403  | -    |
| Stage 2              | 0      | - | 0 | -      | - | 0 | 807    | 591  | -    |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -    |
| Mov Cap-1 Maneuver   | -      | - | - | 1141   | - | - | 200    | 0    | 755  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 200    | 0    | -    |
| Stage 1              | -      | - | - | -      | - | - | 411    | 0    | -    |
| Stage 2              | -      | - | - | -      | - | - | 664    | 0    | -    |

| Approach             | EB | WB  | SB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 2.4 | 46.1 |
| HCM LOS              |    |     | E    |

| Minor Lane/Major Mvmt | EBT | WBL   | WBT | SBLn1 | SBLn2 |
|-----------------------|-----|-------|-----|-------|-------|
| Capacity (veh/h)      | -   | 1141  | -   | 200   | 755   |
| HCM Lane V/C Ratio    | -   | 0.129 | -   | 0.837 | 0.191 |
| HCM Control Delay (s) | -   | 8.6   | 0.5 | 76.5  | 10.9  |
| HCM Lane LOS          | -   | A     | A   | F     | B     |
| HCM 95th %tile Q(veh) | -   | 0.4   | -   | 6.1   | 0.7   |

HCM 6th Signalized Intersection Summary  
 105: SR 3 NB Off Ramp/SR 3 NB On Ramp & Loxie Eagans Blvd

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Lane Configurations          |      | ↔↔   |      |      | ↔↔   |      |      | ↔    | ↔    |     |     |     |
| Traffic Volume (veh/h)       | 164  | 338  | 0    | 0    | 282  | 109  | 351  | 1    | 194  | 0   | 0   | 0   |
| Future Volume (veh/h)        | 164  | 338  | 0    | 0    | 282  | 109  | 351  | 1    | 194  | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj             | 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   |      |     |     |     |
| Adj Sat Flow, veh/h/ln       | 1535 | 1535 | 0    | 0    | 1547 | 1547 | 1522 | 1522 | 1522 |     |     |     |
| Adj Flow Rate, veh/h         | 169  | 348  | 0    | 0    | 291  | 0    | 362  | 1    | 200  |     |     |     |
| Peak Hour Factor             | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |     |     |     |
| Percent Heavy Veh, %         | 6    | 6    | 0    | 0    | 5    | 5    | 7    | 7    | 7    |     |     |     |
| Cap, veh/h                   | 0    | 958  | 0    | 0    | 966  |      | 534  | 1    | 476  |     |     |     |
| Arrive On Green              | 0.00 | 0.33 | 0.00 | 0.00 | 0.33 | 0.00 | 0.37 | 0.37 | 0.37 |     |     |     |
| Sat Flow, veh/h              | 0    | 2993 | 0    | 0    | 3094 | 0    | 1446 | 4    | 1290 |     |     |     |
| Grp Volume(v), veh/h         | 0    | 348  | 0    | 0    | 291  | 0    | 363  | 0    | 200  |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1458 | 0    | 0    | 1470 | 0    | 1450 | 0    | 1290 |     |     |     |
| Q Serve(g_s), s              | 0.0  | 2.8  | 0.0  | 0.0  | 2.2  | 0.0  | 6.4  | 0.0  | 3.5  |     |     |     |
| Cycle Q Clear(g_c), s        | 0.0  | 2.8  | 0.0  | 0.0  | 2.2  | 0.0  | 6.4  | 0.0  | 3.5  |     |     |     |
| Prop In Lane                 | 0.00 |      | 0.00 | 0.00 |      | 0.00 | 1.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h       | 0    | 958  | 0    | 0    | 966  |      | 535  | 0    | 476  |     |     |     |
| V/C Ratio(X)                 | 0.00 | 0.36 | 0.00 | 0.00 | 0.30 |      | 0.68 | 0.00 | 0.42 |     |     |     |
| Avail Cap(c_a), veh/h        | 0    | 6169 | 0    | 0    | 3844 |      | 1438 | 0    | 1280 |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)           | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh     | 0.0  | 7.8  | 0.0  | 0.0  | 7.6  | 0.0  | 8.1  | 0.0  | 7.2  |     |     |     |
| Incr Delay (d2), s/veh       | 0.0  | 0.2  | 0.0  | 0.0  | 0.2  | 0.0  | 1.5  | 0.0  | 0.6  |     |     |     |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(95%),veh/ln     | 0.0  | 1.0  | 0.0  | 0.0  | 0.8  | 0.0  | 2.3  | 0.0  | 1.1  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |     |     |     |
| LnGrp Delay(d),s/veh         | 0.0  | 8.0  | 0.0  | 0.0  | 7.8  | 0.0  | 9.6  | 0.0  | 7.8  |     |     |     |
| LnGrp LOS                    | A    | A    | A    | A    | A    |      | A    | A    | A    |     |     |     |
| Approach Vol, veh/h          |      | 348  |      |      | 291  |      |      | 563  |      |     |     |     |
| Approach Delay, s/veh        |      | 8.0  |      |      | 7.8  |      |      | 8.9  |      |     |     |     |
| Approach LOS                 |      | A    |      |      | A    |      |      | A    |      |     |     |     |
| Timer - Assigned Phs         | 1    | 2    |      | 4    |      | 6    |      |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s     | 0.0  | 14.6 |      | 15.8 |      | 14.6 |      |      |      |     |     |     |
| Change Period (Y+Rc), s      | 4.6  | 4.6  |      | 4.6  |      | 4.6  |      |      |      |     |     |     |
| Max Green Setting (Gmax), s  | 20.0 | 39.8 |      | 30.2 |      | 64.4 |      |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s | 0.0  | 4.2  |      | 8.4  |      | 4.8  |      |      |      |     |     |     |
| Green Ext Time (p_c), s      | 0.0  | 1.9  |      | 2.9  |      | 2.5  |      |      |      |     |     |     |

Intersection Summary

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

Notes

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

HCM 6th Signalized Intersection Summary  
 137: Wheaton Way (SR 303) & Broad St/Private Drwy

04/29/2024



| Movement                      | EBL   | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|-------|------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations           | ↖     | ↗    |      | ↖    | ↗    |       | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)        | 33    | 0    | 31   | 6    | 0    | 0     | 24   | 885  | 13   | 5    | 931  | 19   |
| Future Volume (veh/h)         | 33    | 0    | 31   | 6    | 0    | 0     | 24   | 885  | 13   | 5    | 931  | 19   |
| Initial Q (Qb), veh           | 0     | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 0.98  |      | 0.98 | 0.99 |      | 1.00  | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1447  | 1447 | 1447 | 1610 | 1610 | 1610  | 1560 | 1560 | 1560 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h          | 38    | 0    | 36   | 7    | 0    | 0     | 28   | 1017 | 15   | 6    | 1070 | 22   |
| Peak Hour Factor              | 0.87  | 0.87 | 0.87 | 0.87 | 0.87 | 0.87  | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, %          | 13    | 13   | 13   | 0    | 0    | 0     | 4    | 4    | 4    | 4    | 4    | 4    |
| Cap, veh/h                    | 128   | 0    | 73   | 95   | 97   | 0     | 460  | 2529 | 37   | 475  | 2465 | 51   |
| Arrive On Green               | 0.06  | 0.00 | 0.06 | 0.06 | 0.00 | 0.00  | 0.02 | 0.85 | 0.85 | 0.01 | 0.83 | 0.83 |
| Sat Flow, veh/h               | 1268  | 0    | 1202 | 1374 | 1610 | 0     | 1485 | 2988 | 44   | 1485 | 2969 | 61   |
| Grp Volume(v), veh/h          | 38    | 0    | 36   | 7    | 0    | 0     | 28   | 504  | 528  | 6    | 534  | 558  |
| Grp Sat Flow(s),veh/h/ln      | 1268  | 0    | 1202 | 1374 | 1610 | 0     | 1485 | 1482 | 1551 | 1485 | 1482 | 1549 |
| Q Serve(g_s), s               | 4.1   | 0.0  | 4.1  | 0.7  | 0.0  | 0.0   | 0.4  | 11.1 | 11.1 | 0.1  | 13.4 | 13.4 |
| Cycle Q Clear(g_c), s         | 4.1   | 0.0  | 4.1  | 4.8  | 0.0  | 0.0   | 0.4  | 11.1 | 11.1 | 0.1  | 13.4 | 13.4 |
| Prop In Lane                  | 1.00  |      | 1.00 | 1.00 |      | 0.00  | 1.00 |      | 0.03 | 1.00 |      | 0.04 |
| Lane Grp Cap(c), veh/h        | 128   | 0    | 73   | 95   | 97   | 0     | 460  | 1254 | 1313 | 475  | 1230 | 1286 |
| V/C Ratio(X)                  | 0.30  | 0.00 | 0.50 | 0.07 | 0.00 | 0.00  | 0.06 | 0.40 | 0.40 | 0.01 | 0.43 | 0.43 |
| Avail Cap(c_a), veh/h         | 323   | 0    | 258  | 306  | 345  | 0     | 531  | 1254 | 1313 | 570  | 1230 | 1286 |
| HCM Platoon Ratio             | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00  | 0.00 | 1.00 | 1.00 | 0.00 | 0.00  | 0.87 | 0.87 | 0.87 | 0.94 | 0.94 | 0.94 |
| Uniform Delay (d), s/veh      | 63.7  | 0.0  | 63.7 | 66.0 | 0.0  | 0.0   | 2.2  | 2.5  | 2.5  | 2.1  | 3.2  | 3.2  |
| Incr Delay (d2), s/veh        | 1.3   | 0.0  | 5.2  | 0.3  | 0.0  | 0.0   | 0.0  | 0.8  | 0.8  | 0.0  | 1.1  | 1.0  |
| 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(95%),veh/ln      | 2.5   | 0.0  | 2.4  | 0.5  | 0.0  | 0.0   | 0.1  | 4.8  | 5.0  | 0.0  | 6.2  | 6.5  |
| Unsig. Movement Delay, s/veh  |       |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 65.0  | 0.0  | 68.9 | 66.3 | 0.0  | 0.0   | 2.2  | 3.3  | 3.3  | 2.1  | 4.2  | 4.2  |
| LnGrp LOS                     | E     | A    | E    | E    | A    | A     | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h           |       | 74   |      |      | 7    |       |      | 1060 |      |      | 1098 |      |
| Approach Delay, s/veh         |       | 66.9 |      |      | 66.3 |       |      | 3.3  |      |      | 4.2  |      |
| Approach LOS                  |       | E    |      |      | E    |       |      | A    |      |      | A    |      |
| Timer - Assigned Phs          | 1     | 2    |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 122.5 |      |      | 12.5 | 7.3  | 120.2 |      | 12.5 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.0   | 4.0  |      | 4.0  | 4.0  | 4.0   |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 88.0  |      |      | 30.0 | 10.0 | 88.0  |      | 30.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 13.1  |      |      | 6.1  | 2.4  | 15.4  |      | 6.8  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0   | 8.9  |      | 0.3  | 0.0  | 9.7   |      | 0.0  |      |      |      |      |

Intersection Summary

|                    |  |     |  |  |  |  |  |  |  |  |  |  |
|--------------------|--|-----|--|--|--|--|--|--|--|--|--|--|
| HCM 6th Ctrl Delay |  | 6.0 |  |  |  |  |  |  |  |  |  |  |
| HCM 6th LOS        |  | A   |  |  |  |  |  |  |  |  |  |  |

HCM 6th Signalized Intersection Summary  
 202: SR 16 Spur/Sam Christopherson Dr & SR 3

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL   | WBT  | WBR   | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|-------|------|-------|------|-------|------|------|------|------|
| Lane Configurations          | ↖     | ↑    | ↗    | ↖     | ↑    | ↗     | ↖    | ↑     | ↗    | ↖    | ↑    | ↗    |
| Traffic Volume (veh/h)       | 2     | 613  | 273  | 5     | 343  | 8     | 230  | 68    | 67   | 117  | 112  | 26   |
| Future Volume (veh/h)        | 2     | 613  | 273  | 5     | 343  | 8     | 230  | 68    | 67   | 117  | 112  | 26   |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0     | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 1.00 | 1.00  |      | 1.00  | 1.00 |       | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |       | No   |      | No    |      | No    |      | No    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1510  | 1510 | 1510 | 1497  | 1497 | 1497  | 1484 | 1484  | 1484 | 1535 | 1535 | 1535 |
| Adj Flow Rate, veh/h         | 2     | 689  | 0    | 6     | 385  | 9     | 258  | 76    | 75   | 131  | 126  | 29   |
| Peak Hour Factor             | 0.89  | 0.89 | 0.89 | 0.89  | 0.89 | 0.89  | 0.89 | 0.89  | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %         | 8     | 8    | 8    | 9     | 9    | 9     | 10   | 10    | 10   | 6    | 6    | 6    |
| Cap, veh/h                   | 3     | 744  |      | 9     | 724  | 17    | 290  | 137   | 136  | 156  | 161  | 136  |
| Arrive On Green              | 0.00  | 0.49 | 0.00 | 0.01  | 0.50 | 0.50  | 0.20 | 0.20  | 0.20 | 0.11 | 0.10 | 0.10 |
| Sat Flow, veh/h              | 1438  | 1510 | 1279 | 1426  | 1457 | 34    | 1414 | 686   | 677  | 1462 | 1535 | 1301 |
| Grp Volume(v), veh/h         | 2     | 689  | 0    | 6     | 0    | 394   | 258  | 0     | 151  | 131  | 126  | 29   |
| Grp Sat Flow(s),veh/h/ln     | 1438  | 1510 | 1279 | 1426  | 0    | 1491  | 1414 | 0     | 1363 | 1462 | 1535 | 1301 |
| Q Serve(g_s), s              | 0.1   | 45.0 | 0.0  | 0.4   | 0.0  | 19.1  | 18.8 | 0.0   | 10.5 | 9.3  | 8.5  | 2.2  |
| Cycle Q Clear(g_c), s        | 0.1   | 45.0 | 0.0  | 0.4   | 0.0  | 19.1  | 18.8 | 0.0   | 10.5 | 9.3  | 8.5  | 2.2  |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00  |      | 0.02  | 1.00 |       | 0.50 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 3     | 744  |      | 9     | 0    | 741   | 290  | 0     | 273  | 156  | 161  | 136  |
| V/C Ratio(X)                 | 0.64  | 0.93 |      | 0.69  | 0.00 | 0.53  | 0.89 | 0.00  | 0.55 | 0.84 | 0.78 | 0.21 |
| Avail Cap(c_a), veh/h        | 218   | 929  |      | 135   | 0    | 790   | 455  | 0     | 438  | 318  | 537  | 455  |
| HCM Platoon Ratio            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00  | 1.00 | 0.00 | 1.00  | 0.00 | 1.00  | 1.00 | 0.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 52.7  | 25.0 | 0.0  | 52.4  | 0.0  | 18.2  | 40.9 | 0.0   | 38.0 | 46.3 | 46.1 | 43.3 |
| Incr Delay (d2), s/veh       | 102.7 | 13.3 | 0.0  | 53.1  | 0.0  | 1.2   | 14.9 | 0.0   | 1.3  | 10.4 | 6.1  | 0.6  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.3   | 24.2 | 0.0  | 0.5   | 0.0  | 10.5  | 12.0 | 0.0   | 6.3  | 6.9  | 6.3  | 1.3  |
| Unsig. Movement Delay, s/veh |       |      |      |       |      |       |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 155.4 | 38.3 | 0.0  | 105.5 | 0.0  | 19.3  | 55.8 | 0.0   | 39.3 | 56.8 | 52.2 | 43.9 |
| LnGrp LOS                    | F     | D    |      | F     | A    | B     | E    | A     | D    | E    | D    | D    |
| Approach Vol, veh/h          |       | 691  |      |       | 400  |       |      | 409   |      |      | 286  |      |
| Approach Delay, s/veh        |       | 38.6 |      |       | 20.6 |       |      | 49.7  |      |      | 53.5 |      |
| Approach LOS                 |       | D    |      |       | C    |       |      | D     |      |      | D    |      |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4     | 5    | 6     | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.2   | 57.5 | 26.8 | 16.2  | 4.8  | 57.9  | 16.7 | 26.3  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6   | 5.4  | 5.1  | 5.1   | 4.6  | * 5.4 | 5.4  | * 5.1 |      |      |      |      |
| Max Green Setting (Gmax), s  | 10.0  | 65.0 | 34.0 | 37.0  | 16.0 | * 56  | 23.0 | * 34  |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 12.4  | 47.0 | 20.8 | 10.5  | 2.1  | 21.1  | 11.3 | 12.5  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0   | 5.1  | 0.9  | 0.6   | 0.0  | 4.7   | 0.2  | 0.6   |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 39.5 |
| HCM 6th LOS        | D    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 216: SR 3 & Imperial Way

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      | ↕    | ↗    |      | ↕    |      | ↖    | ↑    | ↗    | ↖    | ↑    | ↗    |
| Traffic Volume (veh/h)        | 46   | 1    | 11   | 1    | 2    | 4    | 38   | 712  | 6    | 18   | 368  | 8    |
| Future Volume (veh/h)         | 46   | 1    | 11   | 1    | 2    | 4    | 38   | 712  | 6    | 18   | 368  | 8    |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln        | 1020 | 1020 | 1020 | 1610 | 1610 | 1610 | 1547 | 1547 | 1547 | 1510 | 1510 | 1510 |
| Adj Flow Rate, veh/h          | 48   | 1    | 12   | 1    | 2    | 4    | 40   | 749  | 6    | 19   | 387  | 8    |
| Peak Hour Factor              | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 47   | 47   | 47   | 0    | 0    | 0    | 5    | 5    | 5    | 8    | 8    | 8    |
| Cap, veh/h                    | 229  | 1    | 66   | 97   | 29   | 46   | 64   | 879  | 745  | 34   | 827  | 701  |
| Arrive On Green               | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.04 | 0.57 | 0.57 | 0.02 | 0.55 | 0.55 |
| Sat Flow, veh/h               | 930  | 19   | 864  | 73   | 375  | 598  | 1474 | 1547 | 1311 | 1438 | 1510 | 1279 |
| Grp Volume(v), veh/h          | 49   | 0    | 12   | 7    | 0    | 0    | 40   | 749  | 6    | 19   | 387  | 8    |
| Grp Sat Flow(s),veh/h/ln      | 950  | 0    | 864  | 1046 | 0    | 0    | 1474 | 1547 | 1311 | 1438 | 1510 | 1279 |
| Q Serve(g_s), s               | 0.0  | 0.0  | 0.6  | 0.0  | 0.0  | 0.0  | 1.2  | 18.3 | 0.1  | 0.6  | 7.0  | 0.1  |
| Cycle Q Clear(g_c), s         | 2.2  | 0.0  | 0.6  | 2.2  | 0.0  | 0.0  | 1.2  | 18.3 | 0.1  | 0.6  | 7.0  | 0.1  |
| Prop In Lane                  | 0.98 |      | 1.00 | 0.14 |      | 0.57 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 230  | 0    | 66   | 171  | 0    | 0    | 64   | 879  | 745  | 34   | 827  | 701  |
| V/C Ratio(X)                  | 0.21 | 0.00 | 0.18 | 0.04 | 0.00 | 0.00 | 0.62 | 0.85 | 0.01 | 0.56 | 0.47 | 0.01 |
| Avail Cap(c_a), veh/h         | 705  | 0    | 517  | 920  | 0    | 0    | 261  | 1371 | 1162 | 255  | 1338 | 1134 |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh      | 20.3 | 0.0  | 19.5 | 19.4 | 0.0  | 0.0  | 21.2 | 8.2  | 4.2  | 21.8 | 6.2  | 4.6  |
| Incr Delay (d2), s/veh        | 0.5  | 0.0  | 1.3  | 0.1  | 0.0  | 0.0  | 9.4  | 3.1  | 0.0  | 13.9 | 0.4  | 0.0  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr      | 0.9  | 0.0  | 0.2  | 0.1  | 0.0  | 0.0  | 1.0  | 8.3  | 0.0  | 0.6  | 3.0  | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 20.7 | 0.0  | 20.8 | 19.5 | 0.0  | 0.0  | 30.6 | 11.2 | 4.2  | 35.7 | 6.6  | 4.7  |
| LnGrp LOS                     | C    | A    | C    | B    | A    | A    | C    | B    | A    | D    | A    | A    |
| Approach Vol, veh/h           |      | 61   |      |      | 7    |      |      | 795  |      |      | 414  |      |
| Approach Delay, s/veh         |      | 20.8 |      |      | 19.5 |      |      | 12.1 |      |      | 7.9  |      |
| Approach LOS                  |      | C    |      |      | B    |      |      | B    |      |      | A    |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 5.6  | 31.6 |      | 7.9  | 6.5  | 30.7 |      | 7.9  |      |      |      |      |
| Change Period (Y+Rc), s       | 4.5  | 6.0  |      | 4.5  | 4.5  | 6.0  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s   | 40.0 | 40.0 |      | 27.0 | 8.0  | 40.0 |      | 27.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 20.3 | 20.3 |      | 4.2  | 3.2  | 9.0  |      | 4.2  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 5.3  |      | 0.2  | 0.0  | 2.5  |      | 0.0  |      |      |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay            |      |      |      |      |      |      |      |      |      |      | 11.2 |      |
| HCM 6th LOS                   |      |      |      |      |      |      |      |      |      |      | B    |      |

HCM 6th Signalized Intersection Summary  
 307: Naval St & 15th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 2    | 135  | 26   | 6    | 57   | 8    | 24   | 6    | 7    | 14   | 20   | 9    |
| Future Volume (veh/h)        | 2    | 135  | 26   | 6    | 57   | 8    | 24   | 6    | 7    | 14   | 20   | 9    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1522 | 1522 | 1522 | 1484 | 1484 | 1484 | 1472 | 1472 | 1472 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 3    | 178  | 34   | 8    | 75   | 11   | 32   | 8    | 9    | 18   | 26   | 12   |
| Peak Hour Factor             | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, %         | 7    | 7    | 7    | 10   | 10   | 10   | 11   | 11   | 11   | 5    | 5    | 5    |
| Cap, veh/h                   | 193  | 322  | 61   | 220  | 314  | 44   | 537  | 119  | 77   | 325  | 291  | 100  |
| Arrive On Green              | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| Sat Flow, veh/h              | 10   | 1234 | 234  | 61   | 1203 | 168  | 704  | 369  | 241  | 239  | 905  | 312  |
| Grp Volume(v), veh/h         | 215  | 0    | 0    | 94   | 0    | 0    | 49   | 0    | 0    | 56   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1477 | 0    | 0    | 1432 | 0    | 0    | 1315 | 0    | 0    | 1457 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.4  | 0.0  | 0.0  | 1.0  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  |
| Prop In Lane                 | 0.01 |      | 0.16 | 0.09 |      | 0.12 | 0.65 |      | 0.18 | 0.32 |      | 0.21 |
| Lane Grp Cap(c), veh/h       | 576  | 0    | 0    | 578  | 0    | 0    | 733  | 0    | 0    | 716  | 0    | 0    |
| V/C Ratio(X)                 | 0.37 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 2581 | 0    | 0    | 2496 | 0    | 0    | 2413 | 0    | 0    | 2571 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 6.1  | 0.0  | 0.0  | 5.6  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.4  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 0.7  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 6.5  | 0.0  | 0.0  | 5.7  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 215  |      |      | 94   |      |      | 49   |      |      | 56   |      |
| Approach Delay, s/veh        |      | 6.5  |      |      | 5.7  |      |      | 4.6  |      |      | 4.6  |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 10.1 |      | 9.0  |      | 10.1 |      | 9.0  |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  |      | 4.0  |      | 4.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 31.0 |      | 31.0 |      | 31.0 |      | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.5  |      | 4.4  |      | 2.5  |      | 3.0  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.2  |      | 1.3  |      | 0.3  |      | 0.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      | 5.9  |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      | A    |      |      |      |      |      |      |      |

# MOVEMENT SUMMARY

 Site: 328 [SR 3 & Ariport Rd (Site Folder: 2023 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
|------------------------------|------|-----------|-----------------------|-----|-----------------------|-----|-----------|-------------|------------------|-------------------|----------------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows          |     | Arrival Flows         |     | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |                | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ]<br>veh/h | %   | [ Total HV ]<br>veh/h | %   |           |             |                  | [ Veh. ]<br>veh   | [ Dist ]<br>ft |           |                |                     |             |
| South: SR 3                  |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 8                            | T1   | All MCs   | 805                   | 8.0 | 805                   | 8.0 | 0.632     | 5.4         | LOS A            | 4.5               | 119.4          | 0.23      | 0.43           | 0.23                | 37.5        |
| 18                           | R2   | All MCs   | 24                    | 8.0 | 24                    | 8.0 | 0.632     | 5.1         | LOS A            | 4.5               | 119.4          | 0.23      | 0.43           | 0.23                | 29.7        |
| Approach                     |      |           | 830                   | 8.0 | 830                   | 8.0 | 0.632     | 5.4         | LOS A            | 4.5               | 119.4          | 0.23      | 0.43           | 0.23                | 37.2        |
| East: Ariport Rd             |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 1                            | L2   | All MCs   | 18                    | 7.0 | 18                    | 7.0 | 0.082     | 11.7        | LOS B            | 0.5               | 12.4           | 0.76      | 0.69           | 0.76                | 26.5        |
| 16                           | R2   | All MCs   | 33                    | 7.0 | 33                    | 7.0 | 0.082     | 7.7         | LOS A            | 0.5               | 12.4           | 0.76      | 0.69           | 0.76                | 26.8        |
| Approach                     |      |           | 51                    | 7.0 | 51                    | 7.0 | 0.082     | 9.1         | LOS A            | 0.5               | 12.4           | 0.76      | 0.69           | 0.76                | 26.7        |
| North: SR 3                  |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 7                            | L2   | All MCs   | 43                    | 8.0 | 43                    | 8.0 | 0.427     | 10.9        | LOS B            | 2.8               | 73.2           | 0.13      | 0.44           | 0.13                | 29.7        |
| 4                            | T1   | All MCs   | 525                   | 8.0 | 525                   | 8.0 | 0.427     | 5.0         | LOS A            | 2.8               | 73.2           | 0.13      | 0.44           | 0.13                | 37.8        |
| Approach                     |      |           | 568                   | 8.0 | 568                   | 8.0 | 0.427     | 5.4         | LOS A            | 2.8               | 73.2           | 0.13      | 0.44           | 0.13                | 37.0        |
| All Vehicles                 |      |           | 1448                  | 8.0 | 1448                  | 8.0 | 0.632     | 5.5         | LOS A            | 4.5               | 119.4          | 0.21      | 0.44           | 0.21                | 36.7        |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

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

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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.

**SIDRA INTERSECTION 9.1 | Copyright © 2000-2024 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, April 29, 2024 5:30:36 PM

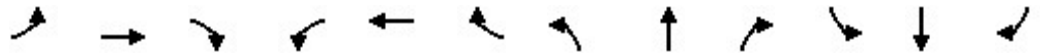
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# HCM 6th Signalized Intersection Summary

## 2: Auto Center Way/SR 3 SB Off-Ramp & Kitsap Way/Kitsap Way (SR 310)

04/29/2024



| Movement  | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|---|------|------|------|------|------|------|------|-------|------|------|------|------|
| Lane Configurations   |      | ↑↑   | ↗    | ↘↗   | ↑↑   |      | ↘    |       | ↗    | ↘    | ↗    | ↘    |
| Traffic Volume (veh/h)  | 0    | 493  | 425  | 392  | 385  | 0    | 70   | 0     | 290  | 448  | 290  | 8    |
| Future Volume (veh/h)   | 0    | 493  | 425  | 392  | 385  | 0    | 70   | 0     | 290  | 448  | 290  | 8    |
| Initial Q (Qb), veh   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)   | 1.00 |      | 0.99 | 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    | 1560 | 1560 | 1560 | 1560 | 0    | 1535 | 0     | 1535 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h  | 0    | 503  | 434  | 400  | 393  | 0    | 71   | 0     | 0    | 376  | 409  | 0    |
| Peak Hour Factor  | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98  | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %  | 0    | 4    | 4    | 4    | 4    | 0    | 6    | 0     | 6    | 4    | 4    | 4    |
| Cap, veh/h  | 0    | 1360 | 603  | 456  | 1918 | 0    | 0    | 0     |      | 435  | 457  |      |
| Arrive On Green   | 0.00 | 0.46 | 0.46 | 0.21 | 0.86 | 0.00 | 0.00 | 0.00  | 0.00 | 0.29 | 0.29 | 0.00 |
| Sat Flow, veh/h   | 0    | 3042 | 1315 | 2882 | 3042 | 0    |      | 0     |      | 1485 | 1560 | 1322 |
| Grp Volume(v), veh/h  | 0    | 503  | 434  | 400  | 393  | 0    |      | 0.0   |      | 376  | 409  | 0    |
| Grp Sat Flow(s),veh/h/ln  | 0    | 1482 | 1315 | 1441 | 1482 | 0    |      |       |      | 1485 | 1560 | 1322 |
| Q Serve(g_s), s   | 0.0  | 16.6 | 40.0 | 20.2 | 3.4  | 0.0  |      |       |      | 36.0 | 37.7 | 0.0  |
| Cycle Q Clear(g_c), s   | 0.0  | 16.6 | 40.0 | 20.2 | 3.4  | 0.0  |      |       |      | 36.0 | 37.7 | 0.0  |
| Prop In Lane  | 0.00 |      | 1.00 | 1.00 |      | 0.00 |      |       |      | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h  | 0    | 1360 | 603  | 456  | 1918 | 0    |      |       |      | 435  | 457  |      |
| V/C Ratio(X)  | 0.00 | 0.37 | 0.72 | 0.88 | 0.20 | 0.00 |      |       |      | 0.86 | 0.90 |      |
| Avail Cap(c_a), veh/h   | 0    | 1360 | 603  | 624  | 1918 | 0    |      |       |      | 560  | 588  |      |
| HCM Platoon Ratio   | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.00 |      |       |      | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)  | 0.00 | 1.00 | 1.00 | 0.94 | 0.94 | 0.00 |      |       |      | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh  | 0.0  | 26.4 | 32.8 | 57.8 | 3.9  | 0.0  |      |       |      | 50.2 | 50.9 | 0.0  |
| Incr Delay (d2), s/veh  | 0.0  | 0.8  | 7.2  | 11.0 | 0.2  | 0.0  |      |       |      | 11.5 | 14.3 | 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  |
| %ile BackOfQ(95%),veh/ln  | 0.0  | 10.1 | 19.9 | 12.2 | 1.8  | 0.0  |      |       |      | 20.9 | 23.1 | 0.0  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh  | 0.0  | 27.2 | 40.0 | 68.8 | 4.1  | 0.0  |      |       |      | 61.7 | 65.2 | 0.0  |
| LnGrp LOS   | A    | C    | D    | E    | A    | A    |      |       |      | E    | E    |      |
| Approach Vol, veh/h   |      | 937  |      |      | 793  |      |      |       |      |      |      | 785  |
| Approach Delay, s/veh   |      | 33.1 |      |      | 36.8 |      |      |       |      |      |      | 63.5 |
| Approach LOS  |      | C    |      |      | D    |      |      |       |      |      |      | E    |
| Timer - Assigned Phs  |      |      | 3    | 4    |      | 6    |      | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s  |      |      | 28.3 | 73.3 |      | 48.4 |      | 101.6 |      |      |      |      |
| Change Period (Y+Rc), s   |      |      | 4.5  | 4.5  |      | 4.5  |      | 4.5   |      |      |      |      |
| Max Green Setting (Gmax), s   |      |      | 32.5 | 29.5 |      | 56.5 |      | 64.5  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s  |      |      | 22.2 | 42.0 |      | 39.7 |      | 5.4   |      |      |      |      |
| Green Ext Time (p_c), s   |      |      | 1.6  | 0.0  |      | 4.2  |      | 3.4   |      |      |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay  |      |      | 43.8 |      |      |      |      |       |      |      |      |      |
| HCM 6th LOS   |      |      | D    |      |      |      |      |       |      |      |      |      |
| <b>Notes</b>  |      |      |      |      |      |      |      |       |      |      |      |      |
| User approved volume balancing among the lanes for turning movement.  |      |      |      |      |      |      |      |       |      |      |      |      |
| Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |      |      |      |      |       |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 3: SR 3 NB Off-Ramp/SR 3 NB On-Ramp & Kitsap Way (SR 310)

04/29/2024



| Movement  | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL   | SBT | SBR |
|---|------|------|------|-------|------|------|------|------|------|-------|-----|-----|
| Lane Configurations   |      |      |      |       |      |      |      |      |      |       |     |     |
| Traffic Volume (veh/h)  | 84   | 1101 | 0    | 0     | 792  | 773  | 63   | 1    | 147  | 0     | 0   | 0   |
| Future Volume (veh/h)   | 84   | 1101 | 0    | 0     | 792  | 773  | 63   | 1    | 147  | 0     | 0   | 0   |
| Initial Q (Qb), veh   | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    |       |     |     |
| Ped-Bike Adj(A_pbT)   | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 |       |     |     |
| Parking Bus, Adj  | 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   |      |      |       |     |     |
| Adj Sat Flow, veh/h/ln  | 1585 | 1585 | 0    | 0     | 1572 | 1572 | 1597 | 1597 | 1597 |       |     |     |
| Adj Flow Rate, veh/h  | 88   | 1147 | 0    | 0     | 825  | 0    | 66   | 1    | 0    |       |     |     |
| Peak Hour Factor  | 0.96 | 0.96 | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |       |     |     |
| Percent Heavy Veh, %  | 2    | 2    | 0    | 0     | 3    | 3    | 1    | 1    | 1    |       |     |     |
| Cap, veh/h  | 898  | 2646 | 0    | 0     | 904  |      | 82   | 1    |      |       |     |     |
| Arrive On Green   | 1.00 | 1.00 | 0.00 | 0.00  | 0.61 | 0.00 | 0.05 | 0.05 | 0.00 |       |     |     |
| Sat Flow, veh/h   | 1509 | 3091 | 0    | 0     | 3066 | 1332 | 1500 | 23   | 1354 |       |     |     |
| Grp Volume(v), veh/h  | 88   | 1147 | 0    | 0     | 825  | 0    | 67   | 0    | 0    |       |     |     |
| Grp Sat Flow(s),veh/h/ln  | 1509 | 1506 | 0    | 0     | 1494 | 1332 | 1522 | 0    | 1354 |       |     |     |
| Q Serve(g_s), s   | 0.0  | 0.0  | 0.0  | 0.0   | 36.5 | 0.0  | 6.5  | 0.0  | 0.0  |       |     |     |
| Cycle Q Clear(g_c), s   | 0.0  | 0.0  | 0.0  | 0.0   | 36.5 | 0.0  | 6.5  | 0.0  | 0.0  |       |     |     |
| Prop In Lane  | 1.00 |      | 0.00 | 0.00  |      | 1.00 | 0.99 |      | 1.00 |       |     |     |
| Lane Grp Cap(c), veh/h  | 898  | 2646 | 0    | 0     | 904  |      | 83   | 0    |      |       |     |     |
| V/C Ratio(X)  | 0.10 | 0.43 | 0.00 | 0.00  | 0.91 |      | 0.81 | 0.00 |      |       |     |     |
| Avail Cap(c_a), veh/h   | 898  | 2646 | 0    | 0     | 2012 |      | 213  | 0    |      |       |     |     |
| HCM Platoon Ratio   | 2.00 | 2.00 | 1.00 | 1.00  | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |       |     |     |
| Upstream Filter(l)  | 0.61 | 0.61 | 0.00 | 0.00  | 0.66 | 0.00 | 1.00 | 0.00 | 0.00 |       |     |     |
| Uniform Delay (d), s/veh  | 0.0  | 0.0  | 0.0  | 0.0   | 27.9 | 0.0  | 70.1 | 0.0  | 0.0  |       |     |     |
| Incr Delay (d2), s/veh  | 0.0  | 0.3  | 0.0  | 0.0   | 10.8 | 0.0  | 16.5 | 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  |       |     |     |
| %ile BackOfQ(95%),veh/lr  | 0.0  | 0.2  | 0.0  | 0.0   | 15.2 | 0.0  | 5.3  | 0.0  | 0.0  |       |     |     |
| Unsig. Movement Delay, s/veh  |      |      |      |       |      |      |      |      |      |       |     |     |
| LnGrp Delay(d),s/veh  | 0.0  | 0.3  | 0.0  | 0.0   | 38.6 | 0.0  | 86.7 | 0.0  | 0.0  |       |     |     |
| LnGrp LOS   | A    | A    | A    | A     | D    |      | F    | A    |      |       |     |     |
| Approach Vol, veh/h   | 1235 |      |      |       | 825  |      | 67   |      |      |       |     |     |
| Approach Delay, s/veh   | 0.3  |      |      |       | 38.6 |      | 86.7 |      |      |       |     |     |
| Approach LOS  | A    |      |      |       | D    |      | F    |      |      |       |     |     |
| Timer - Assigned Phs  |      |      |      | 4     |      | 6    |      | 7    |      | 8     |     |     |
| Phs Duration (G+Y+Rc), s  |      |      |      | 136.8 |      | 13.2 |      | 86.4 |      | 50.4  |     |     |
| Change Period (Y+Rc), s   |      |      |      | 5.0   |      | 5.0  |      | 5.0  |      | 5.0   |     |     |
| Max Green Setting (Gmax), s   |      |      |      | 119.0 |      | 21.0 |      | 13.0 |      | 101.0 |     |     |
| Max Q Clear Time (g_c+I1), s  |      |      |      | 2.0   |      | 8.5  |      | 2.0  |      | 38.5  |     |     |
| Green Ext Time (p_c), s   |      |      |      | 11.4  |      | 0.2  |      | 0.1  |      | 6.9   |     |     |
| <b>Intersection Summary</b>   |      |      |      |       |      |      |      |      |      |       |     |     |
| HCM 6th Ctrl Delay  |      |      | 17.9 |       |      |      |      |      |      |       |     |     |
| HCM 6th LOS   |      |      | B    |       |      |      |      |      |      |       |     |     |
| <b>Notes</b>  |      |      |      |       |      |      |      |      |      |       |     |     |
| Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |       |      |      |      |      |      |       |     |     |

# HCM 6th Signalized Intersection Summary

## 4: Shorewood Dr & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 63   | 1043 | 143  | 5     | 1475 | 50   | 61   | 4     | 23   | 42   | 3    | 35   |
| Future Volume (veh/h)        | 63   | 1043 | 143  | 5     | 1475 | 50   | 61   | 4     | 23   | 42   | 3    | 35   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 0.98 | 0.98 |       | 0.98 | 0.99 |      | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1585  | 1585 | 1585 | 1547 | 1547  | 1547 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 66   | 1086 | 0    | 5     | 1536 | 52   | 64   | 4     | 24   | 44   | 3    | 36   |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2     | 2    | 2    | 5    | 5     | 5    | 4    | 4    | 4    |
| Cap, veh/h                   | 209  | 1166 |      | 678   | 2228 | 969  | 112  | 11    | 29   | 170  | 10   | 151  |
| Arrive On Green              | 0.08 | 0.77 | 0.00 | 0.78  | 1.00 | 1.00 | 0.12 | 0.12  | 0.12 | 0.12 | 0.12 | 0.12 |
| Sat Flow, veh/h              | 1509 | 3011 | 1343 | 1509  | 3011 | 1310 | 610  | 92    | 248  | 1056 | 84   | 1295 |
| Grp Volume(v), veh/h         | 66   | 1086 | 0    | 5     | 1536 | 52   | 92   | 0     | 0    | 47   | 0    | 36   |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 1343 | 1509  | 1506 | 1310 | 950  | 0     | 0    | 1140 | 0    | 1295 |
| Q Serve(g_s), s              | 4.4  | 43.8 | 0.0  | 0.0   | 0.0  | 0.0  | 9.4  | 0.0   | 0.0  | 0.0  | 0.0  | 3.8  |
| Cycle Q Clear(g_c), s        | 4.4  | 43.8 | 0.0  | 0.0   | 0.0  | 0.0  | 15.2 | 0.0   | 0.0  | 5.8  | 0.0  | 3.8  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 0.70 |       | 0.26 | 0.94 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 209  | 1166 |      | 678   | 2228 | 969  | 152  | 0     | 0    | 180  | 0    | 151  |
| V/C Ratio(X)                 | 0.32 | 0.93 |      | 0.01  | 0.69 | 0.05 | 0.61 | 0.00  | 0.00 | 0.26 | 0.00 | 0.24 |
| Avail Cap(c_a), veh/h        | 249  | 1857 |      | 678   | 2228 | 969  | 279  | 0     | 0    | 311  | 0    | 276  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.87 | 0.87 | 0.00 | 0.71  | 0.71 | 0.71 | 1.00 | 0.00  | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 30.1 | 15.3 | 0.0  | 7.6   | 0.0  | 0.0  | 67.1 | 0.0   | 0.0  | 61.0 | 0.0  | 60.2 |
| Incr Delay (d2), s/veh       | 0.7  | 12.9 | 0.0  | 0.0   | 1.3  | 0.1  | 3.9  | 0.0   | 0.0  | 0.8  | 0.0  | 0.8  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.8  | 12.7 | 0.0  | 0.1   | 0.7  | 0.0  | 6.6  | 0.0   | 0.0  | 3.1  | 0.0  | 2.3  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 30.9 | 28.2 | 0.0  | 7.6   | 1.3  | 0.1  | 71.0 | 0.0   | 0.0  | 61.8 | 0.0  | 61.0 |
| LnGrp LOS                    | C    | C    |      | A     | A    | A    | E    | A     | A    | E    | A    | E    |
| Approach Vol, veh/h          |      | 1152 |      |       | 1593 |      |      | 92    |      |      |      | 83   |
| Approach Delay, s/veh        |      | 28.3 |      |       | 1.2  |      |      | 71.0  |      |      |      | 61.4 |
| Approach LOS                 |      | C    |      |       | A    |      |      | E     |      |      |      | E    |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 22.5 | 63.9 | 63.6  |      | 22.5 | 11.0 | 116.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  | 5.5  | * 5.5 |      | 5.0  | 5.0  | 5.5   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 32.0 | 10.0 | * 93  |      | 32.0 | 10.0 | 92.5  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 17.2 | 2.0  | 45.8  |      | 7.8  | 6.4  | 2.0   |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.4  | 0.0  | 12.3  |      | 0.3  | 0.0  | 26.5  |      |      |      |      |

### Intersection Summary

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

### Notes

- \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
- Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 5: Ostrich Bay Ave/Private Drwy & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 1    | 1009 | 63   | 108   | 1420 | 4    | 113  | 0     | 90   | 2    | 0    | 0    |
| Future Volume (veh/h)        | 1    | 1009 | 63   | 108   | 1420 | 4    | 113  | 0     | 90   | 2    | 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 |      | 0.98 | 1.00  |      | 0.97 | 0.99 |       | 0.99 | 0.99 |      | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1585  | 1585 | 1585 | 1572 | 1572  | 1572 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 1    | 1040 | 65   | 111   | 1464 | 4    | 116  | 0     | 93   | 2    | 0    | 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, %         | 2    | 2    | 2    | 2     | 2    | 2    | 3    | 3     | 3    | 0    | 0    | 0    |
| Cap, veh/h                   | 561  | 2216 | 967  | 319   | 1456 | 4    | 193  | 0     | 213  | 78   | 0    | 0    |
| Arrive On Green              | 0.64 | 1.00 | 1.00 | 0.12  | 0.95 | 0.95 | 0.10 | 0.00  | 0.10 | 0.10 | 0.00 | 0.00 |
| Sat Flow, veh/h              | 1509 | 3011 | 1315 | 1509  | 3080 | 8    | 1467 | 0     | 1316 | 299  | 0    | 0    |
| Grp Volume(v), veh/h         | 1    | 1040 | 65   | 111   | 715  | 753  | 116  | 0     | 93   | 2    | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 1315 | 1509  | 1506 | 1583 | 1467 | 0     | 1316 | 299  | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 6.6   | 70.9 | 70.9 | 0.0  | 0.0   | 9.6  | 0.2  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 0.0  | 6.6   | 70.9 | 70.9 | 11.4 | 0.0   | 9.6  | 11.7 | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.01 | 1.00 |       | 1.00 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 561  | 2216 | 967  | 319   | 712  | 748  | 193  | 0     | 213  | 78   | 0    | 0    |
| V/C Ratio(X)                 | 0.00 | 0.47 | 0.07 | 0.35  | 1.01 | 1.01 | 0.60 | 0.00  | 0.44 | 0.03 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 561  | 2216 | 967  | 346   | 1009 | 1061 | 316  | 0     | 329  | 193  | 0    | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.87 | 0.87 | 0.87 | 0.79  | 0.79 | 0.79 | 1.00 | 0.00  | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 14.3 | 0.0  | 0.0  | 22.8  | 4.1  | 4.1  | 66.1 | 0.0   | 56.8 | 71.8 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.6  | 0.1  | 0.5   | 31.4 | 30.7 | 3.0  | 0.0   | 1.4  | 0.1  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.0  | 0.3  | 0.1  | 4.0   | 11.7 | 12.1 | 8.0  | 0.0   | 5.9  | 0.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 14.3 | 0.6  | 0.1  | 23.3  | 35.5 | 34.8 | 69.1 | 0.0   | 58.2 | 71.9 | 0.0  | 0.0  |
| LnGrp LOS                    | B    | A    | A    | C     | F    | F    | E    | A     | E    | E    | A    | A    |
| Approach Vol, veh/h          |      | 1106 |      |       | 1579 |      |      | 209   |      |      |      | 2    |
| Approach Delay, s/veh        |      | 0.6  |      |       | 34.3 |      |      | 64.2  |      |      |      | 71.9 |
| Approach LOS                 |      | A    |      |       | C    |      |      | E     |      |      |      | E    |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 19.8 | 45.5 | 84.6  |      | 19.8 | 14.0 | 116.2 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  | 5.5  | * 5.5 |      | 5.0  | 5.0  | 5.5   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 28.0 | 6.0  | * 1E2 |      | 28.0 | 12.0 | 94.5  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 13.4 | 2.0  | 72.9  |      | 13.7 | 8.6  | 2.0   |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.8  | 0.0  | 14.5  |      | 0.0  | 0.1  | 12.8  |      |      |      |      |

### Intersection Summary

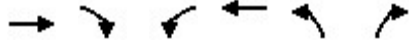
|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 23.6 |
| HCM 6th LOS        | C    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 6: Oyster Bay Ave & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBT  | EBR  | WBL  | WBT   | NBL  | NBR   |
|------------------------------|------|------|------|-------|------|-------|
| Lane Configurations          | ↑↑   | ↑    | ↑    | ↑↑    | ↑    | ↑     |
| Traffic Volume (veh/h)       | 1105 | 49   | 84   | 1406  | 41   | 84    |
| Future Volume (veh/h)        | 1105 | 49   | 84   | 1406  | 41   | 84    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0     |
| Ped-Bike Adj(A_pbT)          |      | 0.97 | 1.00 |       | 1.00 | 1.00  |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Work Zone On Approach        | No   |      |      | No    | No   |       |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1585  | 1610 | 1610  |
| Adj Flow Rate, veh/h         | 1188 | 53   | 90   | 1512  | 44   | 90    |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93  | 0.93 | 0.93  |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2     | 0    | 0     |
| Cap, veh/h                   | 2358 | 1023 | 458  | 2576  | 119  | 160   |
| Arrive On Green              | 1.00 | 1.00 | 0.04 | 0.86  | 0.08 | 0.08  |
| Sat Flow, veh/h              | 3091 | 1307 | 1509 | 3091  | 1533 | 1364  |
| Grp Volume(v), veh/h         | 1188 | 53   | 90   | 1512  | 44   | 90    |
| Grp Sat Flow(s),veh/h/ln     | 1506 | 1307 | 1509 | 1506  | 1533 | 1364  |
| Q Serve(g_s), s              | 0.0  | 0.0  | 1.6  | 21.9  | 4.1  | 9.4   |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 1.6  | 21.9  | 4.1  | 9.4   |
| Prop In Lane                 |      | 1.00 | 1.00 |       | 1.00 | 1.00  |
| Lane Grp Cap(c), veh/h       | 2358 | 1023 | 458  | 2576  | 119  | 160   |
| V/C Ratio(X)                 | 0.50 | 0.05 | 0.20 | 0.59  | 0.37 | 0.56  |
| Avail Cap(c_a), veh/h        | 2358 | 1023 | 509  | 2576  | 348  | 363   |
| HCM Platoon Ratio            | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Upstream Filter(l)           | 0.86 | 0.86 | 0.76 | 0.76  | 1.00 | 1.00  |
| Uniform Delay (d), s/veh     | 0.0  | 0.0  | 2.2  | 3.1   | 65.7 | 62.6  |
| Incr Delay (d2), s/veh       | 0.7  | 0.1  | 0.2  | 0.8   | 1.9  | 3.1   |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   |
| %ile BackOfQ(95%),veh/lr     | 0.4  | 0.0  | 0.7  | 7.8   | 3.0  | 6.1   |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |       |
| LnGrp Delay(d),s/veh         | 0.7  | 0.1  | 2.3  | 3.9   | 67.5 | 65.7  |
| LnGrp LOS                    | A    | A    | A    | A     | E    | E     |
| Approach Vol, veh/h          | 1241 |      |      | 1602  | 134  |       |
| Approach Delay, s/veh        | 0.6  |      |      | 3.8   | 66.3 |       |
| Approach LOS                 | A    |      |      | A     | E    |       |
| Timer - Assigned Phs         |      |      | 3    | 4     | 6    | 8     |
| Phs Duration (G+Y+Rc), s     |      |      | 10.9 | 122.5 | 16.7 | 133.3 |
| Change Period (Y+Rc), s      |      |      | 5.0  | 5.0   | 5.0  | 5.0   |
| Max Green Setting (Gmax), s  |      |      | 11.0 | 90.0  | 34.0 | 106.0 |
| Max Q Clear Time (g_c+I1), s |      |      | 3.6  | 2.0   | 11.4 | 23.9  |
| Green Ext Time (p_c), s      |      |      | 0.1  | 15.9  | 0.4  | 24.4  |
| <b>Intersection Summary</b>  |      |      |      |       |      |       |
| HCM 6th Ctrl Delay           |      |      | 5.3  |       |      |       |
| HCM 6th LOS                  |      |      | A    |       |      |       |

HCM 6th Signalized Intersection Summary  
 7: National Ave/Private Drwy & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |       |      |      |      |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 1     | 1088 | 123  | 301  | 1381 | 2    | 71   | 1     | 290  | 5    | 4    | 2    |
| Future Volume (veh/h)        | 1     | 1088 | 123  | 301  | 1381 | 2    | 71   | 1     | 290  | 5    | 4    | 2    |
| 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 | 0.99 |       | 0.99 | 0.99 |      | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597  | 1597 | 1597 | 1585 | 1585 | 1585 | 1597 | 1597  | 1597 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 1     | 1145 | 0    | 317  | 1454 | 2    | 75   | 1     | 13   | 5    | 4    | 2    |
| Peak Hour Factor             | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 1     | 1    | 1    | 2    | 2    | 2    | 1    | 1     | 1    | 0    | 0    | 0    |
| Cap, veh/h                   | 2     | 1310 |      | 560  | 2471 | 3    | 140  | 2     | 143  | 44   | 28   | 8    |
| Arrive On Green              | 0.00  | 0.14 | 0.00 | 0.74 | 1.00 | 1.00 | 0.11 | 0.11  | 0.11 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h              | 1521  | 3035 | 1354 | 1509 | 3085 | 4    | 862  | 14    | 1335 | 86   | 257  | 76   |
| Grp Volume(v), veh/h         | 1     | 1145 | 0    | 317  | 709  | 747  | 76   | 0     | 13   | 11   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1521  | 1518 | 1354 | 1509 | 1506 | 1584 | 877  | 0     | 1335 | 419  | 0    | 0    |
| Q Serve(g_s), s              | 0.1   | 55.4 | 0.0  | 14.0 | 0.0  | 0.0  | 0.0  | 0.0   | 1.3  | 0.1  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.1   | 55.4 | 0.0  | 14.0 | 0.0  | 0.0  | 14.0 | 0.0   | 1.3  | 14.1 | 0.0  | 0.0  |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00 |      | 0.00 | 0.99 |       | 1.00 | 0.45 |      | 0.18 |
| Lane Grp Cap(c), veh/h       | 2     | 1310 |      | 560  | 1206 | 1269 | 142  | 0     | 143  | 80   | 0    | 0    |
| V/C Ratio(X)                 | 0.40  | 0.87 |      | 0.57 | 0.59 | 0.59 | 0.54 | 0.00  | 0.09 | 0.14 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 106   | 1487 |      | 560  | 1206 | 1269 | 287  | 0     | 280  | 230  | 0    | 0    |
| HCM Platoon Ratio            | 0.33  | 0.33 | 0.33 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.85  | 0.85 | 0.00 | 0.34 | 0.34 | 0.34 | 1.00 | 0.00  | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 74.9  | 60.3 | 0.0  | 14.0 | 0.0  | 0.0  | 66.0 | 0.0   | 60.3 | 60.6 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 71.0  | 7.2  | 0.0  | 0.5  | 0.7  | 0.7  | 3.1  | 0.0   | 0.3  | 0.8  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.2   | 31.4 | 0.0  | 5.1  | 0.4  | 0.4  | 5.4  | 0.0   | 0.8  | 0.7  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |       |      |      |      |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 145.9 | 67.5 | 0.0  | 14.5 | 0.7  | 0.7  | 69.1 | 0.0   | 60.6 | 61.4 | 0.0  | 0.0  |
| LnGrp LOS                    | F     | E    |      | B    | A    | A    | E    | A     | E    | E    | A    | A    |
| Approach Vol, veh/h          |       | 1146 |      |      | 1773 |      |      | 89    |      |      | 11   |      |
| Approach Delay, s/veh        |       | 67.6 |      |      | 3.2  |      |      | 67.9  |      |      | 61.4 |      |
| Approach LOS                 |       | E    |      |      | A    |      |      | E     |      |      | E    |      |
| Timer - Assigned Phs         |       | 2    | 3    | 4    |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |       | 20.6 | 60.1 | 69.3 |      | 20.6 | 4.7  | 124.6 |      |      |      |      |
| Change Period (Y+Rc), s      |       | 4.5  | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5   |      |      |      |      |
| Max Green Setting (Gmax), s  |       | 31.5 | 31.5 | 73.5 |      | 31.5 | 10.5 | 94.5  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |       | 16.0 | 16.0 | 57.4 |      | 16.1 | 2.1  | 2.0   |      |      |      |      |
| Green Ext Time (p_c), s      |       | 0.3  | 0.8  | 7.3  |      | 0.0  | 0.0  | 15.7  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 29.7 |
| HCM 6th LOS        | C    |

Notes

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

# HCM 6th Signalized Intersection Summary

## 8: Marine Dr & Kitsap Way (SR 310)

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT   | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|-------|------|------|------|------|------|------|------|
| Lane Configurations            | ↘    | ↑↑   | ↗    | ↘    | ↑↑    | ↗    | ↘    | ↑    | ↗    | ↘    | ↘    | ↗    |
| Traffic Volume (veh/h)         | 149  | 1156 | 58   | 33   | 1482  | 96   | 75   | 38   | 67   | 99   | 30   | 135  |
| Future Volume (veh/h)          | 149  | 1156 | 58   | 33   | 1482  | 96   | 75   | 38   | 67   | 99   | 30   | 135  |
| 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 |       | 0.99 | 1.00 |      | 0.99 | 0.99 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln         | 1597 | 1597 | 1597 | 1585 | 1585  | 1585 | 1610 | 1610 | 1610 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h           | 155  | 1204 | 60   | 34   | 1544  | 100  | 78   | 40   | 70   | 103  | 31   | 141  |
| Peak Hour Factor               | 0.96 | 0.96 | 0.96 | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %           | 1    | 1    | 1    | 2    | 2     | 2    | 0    | 0    | 0    | 2    | 2    | 2    |
| Cap, veh/h                     | 304  | 1295 | 561  | 332  | 1345  | 597  | 107  | 147  | 123  | 271  | 38   | 173  |
| Arrive On Green                | 0.40 | 0.85 | 0.85 | 0.22 | 0.45  | 0.45 | 0.04 | 0.09 | 0.09 | 0.10 | 0.15 | 0.15 |
| Sat Flow, veh/h                | 1521 | 3035 | 1315 | 1509 | 3011  | 1336 | 1533 | 1610 | 1346 | 1509 | 246  | 1119 |
| Grp Volume(v), veh/h           | 155  | 1204 | 60   | 34   | 1544  | 100  | 78   | 40   | 70   | 103  | 0    | 172  |
| Grp Sat Flow(s),veh/h/ln       | 1521 | 1518 | 1315 | 1509 | 1506  | 1336 | 1533 | 1610 | 1346 | 1509 | 0    | 1365 |
| Q Serve(g_s), s                | 11.5 | 42.2 | 1.1  | 2.7  | 67.0  | 6.7  | 2.8  | 3.5  | 7.5  | 0.0  | 0.0  | 18.3 |
| Cycle Q Clear(g_c), s          | 11.5 | 42.2 | 1.1  | 2.7  | 67.0  | 6.7  | 2.8  | 3.5  | 7.5  | 0.0  | 0.0  | 18.3 |
| Prop In Lane                   | 1.00 |      | 1.00 | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.82 |
| Lane Grp Cap(c), veh/h         | 304  | 1295 | 561  | 332  | 1345  | 597  | 107  | 147  | 123  | 271  | 0    | 211  |
| V/C Ratio(X)                   | 0.51 | 0.93 | 0.11 | 0.10 | 1.15  | 0.17 | 0.73 | 0.27 | 0.57 | 0.38 | 0.00 | 0.81 |
| Avail Cap(c_a), veh/h          | 304  | 1518 | 657  | 332  | 1345  | 597  | 120  | 370  | 310  | 271  | 0    | 323  |
| HCM Platoon Ratio              | 2.00 | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)             | 0.60 | 0.60 | 0.60 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh       | 39.4 | 9.4  | 6.4  | 46.7 | 41.5  | 24.8 | 69.8 | 63.5 | 65.4 | 57.7 | 0.0  | 61.3 |
| Incr Delay (d2), s/veh         | 1.2  | 8.6  | 0.2  | 0.1  | 75.7  | 0.6  | 23.8 | 1.0  | 4.1  | 0.9  | 0.0  | 9.0  |
| 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(95%),veh/ln       | 6.4  | 8.0  | 0.6  | 1.9  | 53.6  | 4.1  | 6.6  | 2.7  | 4.9  | 6.6  | 0.0  | 11.2 |
| Unsig. Movement Delay, s/veh   |      |      |      |      |       |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 40.6 | 18.0 | 6.6  | 46.8 | 117.2 | 25.4 | 93.6 | 64.5 | 69.5 | 58.6 | 0.0  | 70.3 |
| LnGrp LOS                      | D    | B    | A    | D    | F     | C    | F    | E    | E    | E    | A    | E    |
| Approach Vol, veh/h            |      | 1419 |      |      | 1678  |      |      | 188  |      |      | 275  |      |
| Approach Delay, s/veh          |      | 20.0 |      |      | 110.3 |      |      | 78.4 |      |      | 65.9 |      |
| Approach LOS                   |      | B    |      |      | F     |      |      | E    |      |      | E    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5     | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 1.3  | 20.2 | 44.0 | 64.5 | 11.8  | 29.7 | 36.5 | 72.0 |      |      |      |      |
| Change Period (Y+Rc), s        | 6.0  | 6.5  | 6.5  | * 5  | 6.0   | 6.5  | 6.5  | 5.0  |      |      |      |      |
| Max Green Setting (Gmax), s    | 34.5 | 34.5 | 9.0  | * 75 | 7.0   | 35.5 | 16.5 | 67.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2g), s | 9.5  | 9.5  | 4.7  | 44.2 | 4.8   | 20.3 | 13.5 | 69.0 |      |      |      |      |
| Green Ext Time (p_c), s        | 0.1  | 0.4  | 0.0  | 10.8 | 0.1   | 0.9  | 0.2  | 0.0  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 69.2 |
| HCM 6th LOS        | E    |

### Notes

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

HCM 6th TWSC  
 9: Wilbert Ave/Corbet Dr & Kitsap Way (SR 310)

04/29/2024

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      | ↘    | ↑↑   | ↗    | ↘    | ↑↑   |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h       | 24   | 1256 | 17   | 36   | 1598 | 17   | 1    | 0    | 21   | 1    | 0    | 36   |
| Future Vol, veh/h        | 24   | 1256 | 17   | 36   | 1598 | 17   | 1    | 0    | 21   | 1    | 0    | 36   |
| Conflicting Peds, #/hr   | 5    | 0    | 10   | 10   | 0    | 5    | 10   | 0    | 10   | 5    | 0    | 5    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | 200  | -    | 200  | 50   | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 97   | 97   | 97   | 97   | 97   | 97   | 97   | 97   | 97   | 97   | 97   | 97   |
| Heavy Vehicles, %        | 1    | 1    | 1    | 2    | 2    | 2    | 0    | 0    | 0    | 2    | 2    | 2    |
| Mvmt Flow                | 25   | 1295 | 18   | 37   | 1647 | 18   | 1    | 0    | 22   | 1    | 0    | 37   |

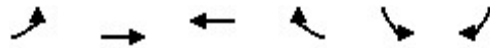
| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |      |     | Minor2 |      |      |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|--------|------|------|
| Conflicting Flow All | 1670   | 0 | 0 | 1323   | 0 | 0 | 2263   | 3099 | 668 | 2443   | 3108 | 848  |
| Stage 1              | -      | - | - | -      | - | - | 1355   | 1355 | -   | 1735   | 1735 | -    |
| Stage 2              | -      | - | - | -      | - | - | 908    | 1744 | -   | 708    | 1373 | -    |
| Critical Hdwy        | 4.12   | - | - | 4.14   | - | - | 7.5    | 6.5  | 6.9 | 7.54   | 6.54 | 6.94 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.54   | 5.54 | -    |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.5    | 5.5  | -   | 6.54   | 5.54 | -    |
| Follow-up Hdwy       | 2.21   | - | - | 2.22   | - | - | 3.5    | 4    | 3.3 | 3.52   | 4.02 | 3.32 |
| Pot Cap-1 Maneuver   | 385    | - | - | 518    | - | - | 23     | 12   | 405 | 16     | 11   | 305  |
| Stage 1              | -      | - | - | -      | - | - | 160    | 220  | -   | 91     | 140  | -    |
| Stage 2              | -      | - | - | -      | - | - | 301    | 142  | -   | 392    | 212  | -    |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -    | -   | -      | -    | -    |
| Mov Cap-1 Maneuver   | 384    | - | - | 514    | - | - | 18     | 10   | 399 | 13     | 9    | 302  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 18     | 10   | -   | 13     | 9    | -    |
| Stage 1              | -      | - | - | -      | - | - | 148    | 204  | -   | 85     | 129  | -    |
| Stage 2              | -      | - | - | -      | - | - | 243    | 131  | -   | 344    | 197  | -    |

| Approach             | EB  |  |  | WB  |  |  | NB |  |  | SB   |  |  |
|----------------------|-----|--|--|-----|--|--|----|--|--|------|--|--|
| HCM Control Delay, s | 0.3 |  |  | 0.3 |  |  | 25 |  |  | 28.8 |  |  |
| HCM LOS              |     |  |  |     |  |  | D  |  |  | D    |  |  |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 203   | 384   | -   | -   | 514   | -   | -   | 189   |
| HCM Lane V/C Ratio    | 0.112 | 0.064 | -   | -   | 0.072 | -   | -   | 0.202 |
| HCM Control Delay (s) | 25    | 15    | -   | -   | 12.5  | -   | -   | 28.8  |
| HCM Lane LOS          | D     | C     | -   | -   | B     | -   | -   | D     |
| HCM 95th %tile Q(veh) | 0.4   | 0.2   | -   | -   | 0.2   | -   | -   | 0.7   |

HCM 6th Signalized Intersection Summary  
 10: Kitsap Way (SR 310) & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | WBT  | WBR  | SBL   | SBR  |
|------------------------------|------|------|------|------|-------|------|
| Lane Configurations          | ↖↖   | ↑↑   | ↗↗   |      |       | ↘↘   |
| Traffic Volume (veh/h)       | 774  | 0    | 659  | 14   | 0     | 886  |
| Future Volume (veh/h)        | 774  | 0    | 659  | 14   | 0     | 886  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0     | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      |      | 0.99 | 1.00  | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach        |      | No   | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1610 | 1610 | 0     | 1610 |
| Adj Flow Rate, veh/h         | 806  | 0    | 686  | 15   | 0     | 923  |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96  | 0.96 |
| Percent Heavy Veh, %         | 2    | 2    | 0    | 0    | 0     | 0    |
| Cap, veh/h                   | 1623 | 2881 | 1119 | 24   | 0     | 0    |
| Arrive On Green              | 0.55 | 0.00 | 0.73 | 0.73 | 0.00  | 0.00 |
| Sat Flow, veh/h              | 2928 | 3091 | 3140 | 67   | 0     |      |
| Grp Volume(v), veh/h         | 806  | 0    | 343  | 358  | 0.0   |      |
| Grp Sat Flow(s),veh/h/ln     | 1464 | 1506 | 1530 | 1597 |       |      |
| Q Serve(g_s), s              | 25.4 | 0.0  | 16.4 | 16.4 |       |      |
| Cycle Q Clear(g_c), s        | 25.4 | 0.0  | 16.4 | 16.4 |       |      |
| Prop In Lane                 | 1.00 |      |      | 0.04 |       |      |
| Lane Grp Cap(c), veh/h       | 1623 | 2881 | 559  | 584  |       |      |
| V/C Ratio(X)                 | 0.50 | 0.00 | 0.61 | 0.61 |       |      |
| Avail Cap(c_a), veh/h        | 1623 | 2881 | 559  | 584  |       |      |
| HCM Platoon Ratio            | 1.00 | 1.00 | 2.00 | 2.00 |       |      |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 1.00 |       |      |
| Uniform Delay (d), s/veh     | 20.6 | 0.0  | 15.0 | 15.0 |       |      |
| Incr Delay (d2), s/veh       | 0.3  | 0.0  | 2.2  | 2.1  |       |      |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  |       |      |
| %ile BackOfQ(95%),veh/ln     | 13.5 | 0.0  | 7.3  | 7.6  |       |      |
| Unsig. Movement Delay, s/veh |      |      |      |      |       |      |
| LnGrp Delay(d),s/veh         | 20.8 | 0.0  | 17.1 | 17.1 |       |      |
| LnGrp LOS                    | C    | A    | B    | B    |       |      |
| Approach Vol, veh/h          |      | 806  | 701  |      |       |      |
| Approach Delay, s/veh        |      | 20.8 | 17.1 |      |       |      |
| Approach LOS                 |      | C    | B    |      |       |      |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6     |      |
| Phs Duration (G+Y+Rc), s     | 89.6 | 60.4 |      |      | 150.0 |      |
| Change Period (Y+Rc), s      | 6.5  | 5.5  |      |      | 6.5   |      |
| Max Green Setting (Gmax), s  | 44.5 | 49.5 |      |      | 113.5 |      |
| Max Q Clear Time (g_c+I1), s | 27.4 | 18.4 |      |      | 0.0   |      |
| Green Ext Time (p_c), s      | 3.7  | 5.6  |      |      | 0.0   |      |
| <b>Intersection Summary</b>  |      |      |      |      |       |      |
| HCM 6th Ctrl Delay           |      |      | 19.1 |      |       |      |
| HCM 6th LOS                  |      |      | B    |      |       |      |

# HCM 6th Signalized Intersection Summary

## 11: Wycoff Ave & Kitsap Way (SR 310)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 32   | 371  | 6    | 108   | 771  | 36   | 5    | 8     | 47   | 2    | 8    | 11   |
| Future Volume (veh/h)        | 32   | 371  | 6    | 108   | 771  | 36   | 5    | 8     | 47   | 2    | 8    | 11   |
| 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 |       | 0.99 | 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       | 1597 | 1597 | 1597 | 1610  | 1610 | 1610 | 1585 | 1585  | 1585 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 34   | 399  | 6    | 116   | 829  | 39   | 5    | 9     | 51   | 2    | 9    | 12   |
| 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, %         | 1    | 1    | 1    | 0     | 0    | 0    | 2    | 2     | 2    | 0    | 0    | 0    |
| Cap, veh/h                   | 621  | 2490 | 1085 | 925   | 2466 | 116  | 29   | 15    | 65   | 29   | 39   | 46   |
| Arrive On Green              | 0.06 | 1.00 | 1.00 | 0.08  | 1.00 | 1.00 | 0.06 | 0.06  | 0.06 | 0.06 | 0.06 | 0.06 |
| Sat Flow, veh/h              | 1521 | 3035 | 1322 | 1533  | 2971 | 140  | 52   | 244   | 1080 | 51   | 659  | 775  |
| Grp Volume(v), veh/h         | 34   | 399  | 6    | 116   | 427  | 441  | 65   | 0     | 0    | 23   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1322 | 1533  | 1530 | 1581 | 1376 | 0     | 0    | 1485 | 0    | 0    |
| Q Serve(g_s), s              | 0.5  | 0.0  | 0.0  | 1.8   | 0.0  | 0.0  | 2.5  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.5  | 0.0  | 0.0  | 1.8   | 0.0  | 0.0  | 7.0  | 0.0   | 0.0  | 2.2  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.09 | 0.08 |       | 0.78 | 0.09 |      | 0.52 |
| Lane Grp Cap(c), veh/h       | 621  | 2490 | 1085 | 925   | 1269 | 1312 | 108  | 0     | 0    | 115  | 0    | 0    |
| V/C Ratio(X)                 | 0.05 | 0.16 | 0.01 | 0.13  | 0.34 | 0.34 | 0.60 | 0.00  | 0.00 | 0.20 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 707  | 2490 | 1085 | 1089  | 1269 | 1312 | 236  | 0     | 0    | 250  | 0    | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 1.00 | 1.00 | 0.88  | 0.88 | 0.88 | 1.00 | 0.00  | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 1.7  | 0.0  | 0.0  | 1.5   | 0.0  | 0.0  | 69.6 | 0.0   | 0.0  | 67.4 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.1  | 0.0  | 0.1   | 0.6  | 0.6  | 5.3  | 0.0   | 0.0  | 0.8  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.2  | 0.1  | 0.0  | 0.7   | 0.4  | 0.4  | 4.8  | 0.0   | 0.0  | 1.6  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 1.7  | 0.1  | 0.0  | 1.6   | 0.6  | 0.6  | 74.8 | 0.0   | 0.0  | 68.2 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A     | A    | A    | E    | A     | A    | E    | A    | A    |
| Approach Vol, veh/h          |      | 439  |      |       | 984  |      |      | 65    |      |      | 23   |      |
| Approach Delay, s/veh        |      | 0.3  |      |       | 0.7  |      |      | 74.8  |      |      | 68.2 |      |
| Approach LOS                 |      | A    |      |       | A    |      |      | E     |      |      | E    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 13.0 | 10.0 | 127.1 |      | 13.0 | 8.5  | 128.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  | 4.0  | 4.0   |      | 4.0  | 4.0  | 4.0   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 23.0 | 22.0 | 93.0  |      | 23.0 | 13.0 | 102.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 9.0  | 3.8  | 2.0   |      | 4.2  | 2.5  | 2.0   |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.2  | 0.3  | 3.2   |      | 0.1  | 0.0  | 7.3   |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 4.8   |      |      |      |       |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A     |      |      |      |       |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 12: N Callow Ave & Kitsap Way (SR 310)/6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          | ↖    | ↗    |      | ↖     | ↗    |      | ↖    | ↗     |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)       | 23   | 352  | 57   | 113   | 762  | 58   | 107  | 134   | 23   | 42   | 108  | 29   |
| Future Volume (veh/h)        | 23   | 352  | 57   | 113   | 762  | 58   | 107  | 134   | 23   | 42   | 108  | 29   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 0.98 | 1.00 |       | 0.98 | 0.99 |      | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1597  | 1597 | 1597 | 1597 | 1597  | 1597 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 24   | 374  | 61   | 120   | 811  | 62   | 114  | 143   | 24   | 45   | 115  | 31   |
| Peak Hour Factor             | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 1     | 1    | 1    | 1    | 1     | 1    | 1    | 1    | 1    |
| Cap, veh/h                   | 518  | 1766 | 286  | 705   | 1967 | 150  | 172  | 192   | 32   | 149  | 134  | 36   |
| Arrive On Green              | 0.03 | 0.68 | 0.68 | 0.08  | 1.00 | 1.00 | 0.07 | 0.14  | 0.14 | 0.03 | 0.11 | 0.11 |
| Sat Flow, veh/h              | 1521 | 2615 | 423  | 1521  | 2852 | 218  | 1521 | 1329  | 223  | 1521 | 1204 | 325  |
| Grp Volume(v), veh/h         | 24   | 216  | 219  | 120   | 432  | 441  | 114  | 0     | 167  | 45   | 0    | 146  |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1520 | 1521  | 1518 | 1552 | 1521 | 0     | 1552 | 1521 | 0    | 1528 |
| Q Serve(g_s), s              | 0.7  | 8.1  | 8.2  | 3.8   | 0.0  | 0.0  | 9.8  | 0.0   | 15.5 | 3.9  | 0.0  | 14.1 |
| Cycle Q Clear(g_c), s        | 0.7  | 8.1  | 8.2  | 3.8   | 0.0  | 0.0  | 9.8  | 0.0   | 15.5 | 3.9  | 0.0  | 14.1 |
| Prop In Lane                 | 1.00 |      | 0.28 | 1.00  |      | 0.14 | 1.00 |       | 0.14 | 1.00 |      | 0.21 |
| Lane Grp Cap(c), veh/h       | 518  | 1025 | 1027 | 705   | 1047 | 1071 | 172  | 0     | 225  | 149  | 0    | 170  |
| V/C Ratio(X)                 | 0.05 | 0.21 | 0.21 | 0.17  | 0.41 | 0.41 | 0.66 | 0.00  | 0.74 | 0.30 | 0.00 | 0.86 |
| Avail Cap(c_a), veh/h        | 581  | 1025 | 1027 | 746   | 1047 | 1071 | 172  | 0     | 341  | 250  | 0    | 387  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 2.00  | 2.00 | 2.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.99 | 0.99 | 0.99 | 0.93  | 0.93 | 0.93 | 0.64 | 0.00  | 0.64 | 0.90 | 0.00 | 0.90 |
| Uniform Delay (d), s/veh     | 6.8  | 9.2  | 9.2  | 6.6   | 0.0  | 0.0  | 53.9 | 0.0   | 61.5 | 56.9 | 0.0  | 65.5 |
| Incr Delay (d2), s/veh       | 0.0  | 0.5  | 0.5  | 0.1   | 1.1  | 1.1  | 4.9  | 0.0   | 2.3  | 0.4  | 0.0  | 8.1  |
| 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(95%),veh/lr     | 0.4  | 5.1  | 5.2  | 2.1   | 0.6  | 0.6  | 6.7  | 0.0   | 9.6  | 2.8  | 0.0  | 9.7  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 6.9  | 9.7  | 9.7  | 6.6   | 1.1  | 1.1  | 58.9 | 0.0   | 63.8 | 57.3 | 0.0  | 73.6 |
| LnGrp LOS                    | A    | A    | A    | A     | A    | A    | E    | A     | E    | E    | A    | E    |
| Approach Vol, veh/h          |      | 459  |      |       | 993  |      |      | 281   |      |      | 191  |      |
| Approach Delay, s/veh        |      | 9.5  |      |       | 1.8  |      |      | 61.8  |      |      | 69.7 |      |
| Approach LOS                 |      | A    |      |       | A    |      |      | E     |      |      | E    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 9.0  | 25.7 | 10.0 | 105.3 | 14.0 | 20.7 | 7.8  | 107.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.0  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0  | 4.0  | 4.0   |      |      |      |      |
| Max Green Setting (Gmax), s  | 15.0 | 33.0 | 10.0 | 76.0  | 10.0 | 38.0 | 10.0 | 76.0  |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 15.0 | 17.5 | 5.8  | 10.2  | 11.8 | 16.1 | 2.7  | 2.0   |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.6  | 0.1  | 2.5   | 0.0  | 0.6  | 0.0  | 5.8   |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |       | 19.1 |      |      |       |      |      |      |      |
| HCM 6th LOS                  |      |      |      |       | B    |      |      |       |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 13: N Montgomery Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |       |      |      |      |      |
| Traffic Volume (veh/h)       | 2    | 377  | 36   | 32    | 916  | 10   | 37   | 7     | 13   | 1    | 2    | 4    |
| Future Volume (veh/h)        | 2    | 377  | 36   | 32    | 916  | 10   | 37   | 7     | 13   | 1    | 2    | 4    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 0.98 | 0.97 |       | 0.96 | 0.98 |      | 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    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1610  | 1610 | 1610 | 1610 | 1610  | 1610 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 2    | 401  | 38   | 34    | 974  | 11   | 39   | 7     | 14   | 1    | 2    | 4    |
| Peak Hour Factor             | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 501  | 2302 | 217  | 886   | 2628 | 30   | 95   | 18    | 22   | 32   | 37   | 55   |
| Arrive On Green              | 0.01 | 1.00 | 1.00 | 0.03  | 0.85 | 0.85 | 0.07 | 0.07  | 0.07 | 0.07 | 0.07 | 0.07 |
| Sat Flow, veh/h              | 1521 | 2802 | 264  | 1533  | 3097 | 35   | 809  | 268   | 328  | 72   | 535  | 810  |
| Grp Volume(v), veh/h         | 2    | 216  | 223  | 34    | 481  | 504  | 60   | 0     | 0    | 7    | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1549 | 1533  | 1530 | 1603 | 1405 | 0     | 0    | 1417 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 0.5   | 10.4 | 10.4 | 5.1  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.0  | 0.0  | 0.0  | 0.5   | 10.4 | 10.4 | 6.2  | 0.0   | 0.0  | 0.7  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 0.17 | 1.00  |      | 0.02 | 0.65 |       | 0.23 | 0.14 |      | 0.57 |
| Lane Grp Cap(c), veh/h       | 501  | 1246 | 1272 | 886   | 1298 | 1360 | 136  | 0     | 0    | 124  | 0    | 0    |
| V/C Ratio(X)                 | 0.00 | 0.17 | 0.18 | 0.04  | 0.37 | 0.37 | 0.44 | 0.00  | 0.00 | 0.06 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 588  | 1246 | 1272 | 942   | 1298 | 1360 | 402  | 0     | 0    | 392  | 0    | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.98 | 0.98 | 0.98 | 0.78  | 0.78 | 0.78 | 0.99 | 0.00  | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 2.4  | 0.0  | 0.0  | 1.4   | 2.5  | 2.5  | 67.9 | 0.0   | 0.0  | 65.4 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0  | 0.3  | 0.3  | 0.0   | 0.6  | 0.6  | 1.7  | 0.0   | 0.0  | 0.1  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.0  | 0.2  | 0.2  | 0.2   | 5.0  | 5.3  | 4.2  | 0.0   | 0.0  | 0.5  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 2.4  | 0.3  | 0.3  | 1.4   | 3.1  | 3.1  | 69.6 | 0.0   | 0.0  | 65.6 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A     | A    | A    | E    | A     | A    | E    | A    | A    |
| Approach Vol, veh/h          |      | 441  |      |       | 1019 |      |      | 60    |      |      |      | 7    |
| Approach Delay, s/veh        |      | 0.3  |      |       | 3.1  |      |      | 69.6  |      |      |      | 65.6 |
| Approach LOS                 |      | A    |      |       | A    |      |      | E     |      |      |      | E    |
| Timer - Assigned Phs         |      | 2    | 3    | 4     |      | 6    | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 14.3 | 8.5  | 127.2 |      | 14.3 | 4.5  | 131.3 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  | 4.0  | 4.0   |      | 4.0  | 4.0  | 4.0   |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 39.0 | 10.0 | 89.0  |      | 39.0 | 9.0  | 90.0  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 8.2  | 2.5  | 2.0   |      | 2.7  | 2.0  | 12.4  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.2  | 0.0  | 2.5   |      | 0.0  | 0.0  | 6.8   |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |       |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 5.2   |      |      |      |       |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A     |      |      |      |       |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 14: Naval Ave & 6th St

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)         | 29   | 285  | 73   | 107  | 676  | 27   | 207  | 204  | 144  | 14   | 55   | 18   |
| Future Volume (veh/h)          | 29   | 285  | 73   | 107  | 676  | 27   | 207  | 204  | 144  | 14   | 55   | 18   |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 0.99 | 1.00 |      | 0.99 | 0.92 |      | 0.96 | 1.00 |      | 0.92 |
| 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         | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h           | 32   | 317  | 81   | 119  | 751  | 30   | 230  | 227  | 160  | 16   | 61   | 20   |
| Peak Hour Factor               | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, %           | 1    | 1    | 1    | 1    | 1    | 1    | 0    | 0    | 0    | 1    | 1    | 1    |
| Cap, veh/h                     | 287  | 793  | 199  | 464  | 1109 | 44   | 460  | 461  | 308  | 152  | 190  | 58   |
| Arrive On Green                | 0.03 | 0.33 | 0.33 | 0.08 | 0.37 | 0.37 | 0.20 | 0.27 | 0.27 | 0.02 | 0.08 | 0.08 |
| Sat Flow, veh/h                | 1521 | 2397 | 603  | 1521 | 2974 | 119  | 1533 | 1726 | 1153 | 1521 | 2240 | 684  |
| Grp Volume(v), veh/h           | 32   | 199  | 199  | 119  | 383  | 398  | 230  | 200  | 187  | 16   | 40   | 41   |
| Grp Sat Flow(s),veh/h/ln       | 1521 | 1518 | 1482 | 1521 | 1518 | 1575 | 1533 | 1530 | 1349 | 1521 | 1518 | 1406 |
| Q Serve(g_s), s                | 0.8  | 5.9  | 6.1  | 3.0  | 12.5 | 12.5 | 1.5  | 6.5  | 7.0  | 0.0  | 1.5  | 1.6  |
| Cycle Q Clear(g_c), s          | 0.8  | 5.9  | 6.1  | 3.0  | 12.5 | 12.5 | 1.5  | 6.5  | 7.0  | 0.0  | 1.5  | 1.6  |
| Prop In Lane                   | 1.00 |      | 0.41 | 1.00 |      | 0.08 | 1.00 |      | 0.85 | 1.00 |      | 0.49 |
| Lane Grp Cap(c), veh/h         | 287  | 502  | 490  | 464  | 566  | 587  | 460  | 409  | 360  | 152  | 129  | 119  |
| V/C Ratio(X)                   | 0.11 | 0.40 | 0.41 | 0.26 | 0.68 | 0.68 | 0.50 | 0.49 | 0.52 | 0.11 | 0.31 | 0.34 |
| Avail Cap(c_a), veh/h          | 635  | 915  | 894  | 876  | 1044 | 1083 | 815  | 662  | 584  | 523  | 399  | 370  |
| HCM Platoon Ratio              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh       | 13.0 | 15.2 | 15.2 | 11.6 | 15.5 | 15.5 | 18.8 | 18.2 | 18.4 | 28.3 | 25.3 | 25.4 |
| Incr Delay (d2), s/veh         | 0.2  | 0.6  | 0.7  | 0.3  | 1.7  | 1.7  | 1.0  | 1.1  | 1.4  | 0.4  | 1.6  | 2.1  |
| 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(95%),veh/lr       | 0.5  | 3.6  | 3.6  | 1.7  | 7.5  | 7.7  | 4.5  | 4.1  | 3.9  | 0.4  | 1.0  | 1.1  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 13.2 | 15.8 | 15.9 | 11.9 | 17.2 | 17.1 | 19.8 | 19.3 | 19.8 | 28.7 | 26.9 | 27.5 |
| LnGrp LOS                      | B    | B    | B    | B    | B    | B    | B    | B    | B    | C    | C    | C    |
| Approach Vol, veh/h            |      | 430  |      |      | 900  |      |      | 617  |      |      | 97   |      |
| Approach Delay, s/veh          |      | 15.6 |      |      | 16.5 |      |      | 19.6 |      |      | 27.4 |      |
| Approach LOS                   |      | B    |      |      | B    |      |      | B    |      |      | C    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 5.7  | 20.2 | 9.0  | 24.0 | 16.4 | 9.5  | 6.5  | 26.5 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s    | 15.5 | 25.5 | 20.5 | 35.5 | 25.5 | 15.5 | 15.5 | 40.5 |      |      |      |      |
| Max Q Clear Time (g_c+1/2g), s | 12.0 | 9.0  | 5.0  | 8.1  | 3.5  | 3.6  | 2.8  | 14.5 |      |      |      |      |
| Green Ext Time (p_c), s        | 0.0  | 2.7  | 0.3  | 3.2  | 0.9  | 0.3  | 0.0  | 6.8  |      |      |      |      |
| <b>Intersection Summary</b>    |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay             |      |      |      |      |      |      |      |      |      |      | 17.8 |      |
| HCM 6th LOS                    |      |      |      |      |      |      |      |      |      |      | B    |      |

# HCM 6th Signalized Intersection Summary

## 16: Veneta Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔    |      |      | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Volume (veh/h)       | 9    | 453  | 32   | 20   | 738  | 9    | 40   | 12   | 37   | 7    | 4    | 17   |
| Future Volume (veh/h)        | 9    | 453  | 32   | 20   | 738  | 9    | 40   | 12   | 37   | 7    | 4    | 17   |
| 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 | 0.99 |      | 0.99 | 0.95 |      | 0.94 | 0.96 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 | 1610 | 1610 | 1610 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 10   | 503  | 36   | 22   | 820  | 10   | 44   | 13   | 41   | 8    | 4    | 19   |
| Peak Hour Factor             | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 1    | 1    | 1    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 85   | 1627 | 115  | 95   | 1730 | 21   | 216  | 73   | 131  | 139  | 75   | 191  |
| Arrive On Green              | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| Sat Flow, veh/h              | 14   | 2779 | 196  | 29   | 2955 | 36   | 476  | 320  | 572  | 200  | 327  | 835  |
| Grp Volume(v), veh/h         | 290  | 0    | 259  | 445  | 0    | 407  | 98   | 0    | 0    | 31   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1578 | 0    | 1410 | 1573 | 0    | 1447 | 1368 | 0    | 0    | 1362 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 4.5  | 0.0  | 0.0  | 7.9  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 4.5  | 0.0  | 4.5  | 7.8  | 0.0  | 7.9  | 2.7  | 0.0  | 0.0  | 0.8  | 0.0  | 0.0  |
| Prop In Lane                 | 0.03 |      | 0.14 | 0.05 |      | 0.02 | 0.45 |      | 0.42 | 0.26 |      | 0.61 |
| Lane Grp Cap(c), veh/h       | 1001 | 0    | 826  | 999  | 0    | 847  | 421  | 0    | 0    | 405  | 0    | 0    |
| V/C Ratio(X)                 | 0.29 | 0.00 | 0.31 | 0.45 | 0.00 | 0.48 | 0.23 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1849 | 0    | 1611 | 1852 | 0    | 1652 | 680  | 0    | 0    | 662  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 5.1  | 0.0  | 5.1  | 5.8  | 0.0  | 5.8  | 15.5 | 0.0  | 0.0  | 14.8 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.6  | 0.0  | 0.8  | 1.1  | 0.0  | 1.5  | 1.0  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.2  | 0.0  | 2.0  | 3.8  | 0.0  | 3.6  | 1.7  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 5.7  | 0.0  | 5.9  | 6.9  | 0.0  | 7.3  | 16.5 | 0.0  | 0.0  | 15.0 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | B    | A    | A    | B    | A    | A    |
| Approach Vol, veh/h          |      | 549  |      |      | 852  |      |      | 98   |      |      | 31   |      |
| Approach Delay, s/veh        |      | 5.8  |      |      | 7.1  |      |      | 16.5 |      |      | 15.0 |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 33.0 |      | 15.6 |      | 33.0 |      | 15.6 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 55.5 |      | 20.5 |      | 55.5 |      | 20.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 6.5  |      | 2.8  |      | 9.9  |      | 4.7  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 10.8 |      | 0.2  |      | 18.6 |      | 0.9  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 7.4  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 17: Warren Ave (SR 303) & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 225  | 211  | 16   | 39   | 456  | 100  | 167  | 478  | 14   | 55   | 406  | 110  |
| Future Volume (veh/h)        | 225  | 211  | 16   | 39   | 456  | 100  | 167  | 478  | 14   | 55   | 406  | 110  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.97 | 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       | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 239  | 224  | 17   | 41   | 485  | 106  | 178  | 509  | 15   | 59   | 432  | 117  |
| 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    | 0    | 0    | 1    | 1    | 1    | 2    | 2    | 2    | 3    | 3    | 3    |
| Cap, veh/h                   | 295  | 889  | 67   | 391  | 546  | 119  | 437  | 1339 | 39   | 483  | 960  | 258  |
| Arrive On Green              | 0.14 | 0.31 | 0.31 | 0.05 | 0.22 | 0.22 | 0.16 | 0.90 | 0.90 | 0.06 | 0.55 | 0.55 |
| Sat Flow, veh/h              | 1533 | 2880 | 217  | 1521 | 2465 | 535  | 1509 | 2987 | 88   | 1497 | 2328 | 625  |
| Grp Volume(v), veh/h         | 239  | 118  | 123  | 41   | 297  | 294  | 178  | 256  | 268  | 59   | 276  | 273  |
| Grp Sat Flow(s),veh/h/ln     | 1533 | 1530 | 1567 | 1521 | 1518 | 1482 | 1509 | 1506 | 1569 | 1497 | 1494 | 1459 |
| Q Serve(g_s), s              | 13.8 | 6.9  | 7.1  | 2.4  | 22.8 | 23.1 | 8.3  | 3.2  | 3.2  | 2.7  | 13.3 | 13.5 |
| Cycle Q Clear(g_c), s        | 13.8 | 6.9  | 7.1  | 2.4  | 22.8 | 23.1 | 8.3  | 3.2  | 3.2  | 2.7  | 13.3 | 13.5 |
| Prop In Lane                 | 1.00 |      | 0.14 | 1.00 |      | 0.36 | 1.00 |      | 0.06 | 1.00 |      | 0.43 |
| Lane Grp Cap(c), veh/h       | 295  | 472  | 484  | 391  | 336  | 329  | 437  | 675  | 704  | 483  | 616  | 601  |
| V/C Ratio(X)                 | 0.81 | 0.25 | 0.25 | 0.10 | 0.88 | 0.89 | 0.41 | 0.38 | 0.38 | 0.12 | 0.45 | 0.45 |
| Avail Cap(c_a), veh/h        | 398  | 567  | 581  | 435  | 373  | 364  | 437  | 675  | 704  | 637  | 616  | 601  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.33 | 1.33 | 1.33 |
| Upstream Filter(l)           | 0.97 | 0.97 | 0.97 | 0.63 | 0.63 | 0.63 | 0.98 | 0.98 | 0.98 | 0.70 | 0.70 | 0.70 |
| Uniform Delay (d), s/veh     | 31.0 | 31.1 | 31.1 | 32.7 | 45.2 | 45.3 | 16.3 | 3.6  | 3.6  | 18.3 | 18.9 | 19.0 |
| Incr Delay (d2), s/veh       | 9.4  | 0.3  | 0.3  | 0.1  | 13.8 | 15.3 | 0.7  | 1.6  | 1.5  | 0.1  | 1.6  | 1.7  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 9.8  | 4.8  | 5.0  | 1.6  | 14.0 | 14.0 | 4.6  | 1.9  | 2.0  | 1.7  | 7.3  | 7.3  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 40.4 | 31.4 | 31.4 | 32.8 | 59.0 | 60.6 | 17.1 | 5.2  | 5.1  | 18.4 | 20.6 | 20.7 |
| LnGrp LOS                    | D    | C    | C    | C    | E    | E    | B    | A    | A    | B    | C    | C    |
| Approach Vol, veh/h          |      | 480  |      |      | 632  |      |      | 702  |      |      | 608  |      |
| Approach Delay, s/veh        |      | 35.9 |      |      | 58.1 |      |      | 8.2  |      |      | 20.4 |      |
| Approach LOS                 |      | D    |      |      | E    |      |      | A    |      |      | C    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 9.7  | 58.3 | 10.5 | 41.5 | 14.0 | 54.0 | 20.9 | 31.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.5  | 30.5 | 9.5  | 44.5 | 9.5  | 38.5 | 24.5 | 29.5 |      |      |      |      |
| Max Q Clear Time (g_c+14), s | 14.5 | 5.2  | 4.4  | 9.1  | 10.3 | 15.5 | 15.8 | 25.1 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 4.0  | 0.0  | 1.9  | 0.0  | 4.2  | 0.6  | 1.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      | 29.8 |      |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      | C    |      |

# HCM 6th Signalized Intersection Summary

## 18: Park Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    | ↗    |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 27   | 175  | 95   | 5    | 287  | 17   | 238  | 152  | 27   | 13   | 44   | 45   |
| Future Volume (veh/h)        | 27   | 175  | 95   | 5    | 287  | 17   | 238  | 152  | 27   | 13   | 44   | 45   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.89 | 0.94 |      | 0.99 | 0.96 |      | 0.90 | 0.98 |      | 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       | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 34   | 222  | 120  | 6    | 363  | 22   | 301  | 192  | 34   | 16   | 56   | 46   |
| Peak Hour Factor             | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.97 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 1    | 1    | 1    | 0    | 0    | 0    | 1    | 1    | 1    |
| Cap, veh/h                   | 117  | 529  | 440  | 73   | 542  | 32   | 460  | 245  | 41   | 130  | 358  | 261  |
| Arrive On Green              | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 |
| Sat Flow, veh/h              | 103  | 1444 | 1202 | 7    | 1481 | 89   | 763  | 533  | 89   | 110  | 778  | 567  |
| Grp Volume(v), veh/h         | 256  | 0    | 120  | 391  | 0    | 0    | 527  | 0    | 0    | 118  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1546 | 0    | 1202 | 1576 | 0    | 0    | 1385 | 0    | 0    | 1455 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 3.6  | 0.0  | 0.0  | 0.0  | 14.5 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 6.2  | 0.0  | 3.6  | 10.7 | 0.0  | 0.0  | 17.0 | 0.0  | 0.0  | 2.5  | 0.0  | 0.0  |
| Prop In Lane                 | 0.13 |      | 1.00 | 0.02 |      | 0.06 | 0.57 |      | 0.06 | 0.14 |      | 0.39 |
| Lane Grp Cap(c), veh/h       | 645  | 0    | 440  | 648  | 0    | 0    | 746  | 0    | 0    | 748  | 0    | 0    |
| V/C Ratio(X)                 | 0.40 | 0.00 | 0.27 | 0.60 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 979  | 0    | 711  | 1001 | 0    | 0    | 926  | 0    | 0    | 931  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 12.3 | 0.0  | 11.5 | 13.8 | 0.0  | 0.0  | 12.0 | 0.0  | 0.0  | 8.2  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.8  | 0.0  | 0.7  | 1.9  | 0.0  | 0.0  | 3.0  | 0.0  | 0.0  | 0.2  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 3.8  | 0.0  | 1.7  | 6.6  | 0.0  | 0.0  | 8.5  | 0.0  | 0.0  | 1.3  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 13.2 | 0.0  | 12.2 | 15.7 | 0.0  | 0.0  | 15.1 | 0.0  | 0.0  | 8.4  | 0.0  | 0.0  |
| LnGrp LOS                    | B    | A    | B    | B    | A    | A    | B    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 376  |      |      | 391  |      |      | 527  |      |      | 118  |      |
| Approach Delay, s/veh        |      | 12.9 |      |      | 15.7 |      |      | 15.1 |      |      | 8.4  |      |
| Approach LOS                 |      | B    |      |      | B    |      |      | B    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 28.2 |      | 23.4 |      | 28.2 |      | 23.4 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 30.5 |      | 30.5 |      | 30.5 |      | 30.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 19.0 |      | 8.2  |      | 4.5  |      | 12.7 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 4.7  |      | 4.0  |      | 1.3  |      | 4.2  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      | 14.1 |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      | B    |      |      |      |      |      |      |      |

**Intersection**

Intersection Delay, s/veh 11.6

Intersection LOS B

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Vol, veh/h  | 27   | 190  | 48   | 30   | 185  | 24   | 47   | 58   | 53   | 20   | 34   | 26   |
| Future Vol, veh/h   | 27   | 190  | 48   | 30   | 185  | 24   | 47   | 58   | 53   | 20   | 34   | 26   |
| Peak Hour Factor    | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles, %   | 1    | 1    | 1    | 2    | 2    | 2    | 1    | 1    | 1    | 6    | 6    | 6    |
| Mvmt Flow           | 32   | 224  | 56   | 35   | 218  | 28   | 55   | 68   | 62   | 24   | 40   | 31   |
| Number of Lanes     | 1    | 1    | 0    | 1    | 1    | 0    | 0    | 1    | 1    | 0    | 1    | 0    |

| Approach                   | EB   | WB   | NB   | SB   |
|----------------------------|------|------|------|------|
| Opposing Approach          | WB   | EB   | SB   | NB   |
| Opposing Lanes             | 2    | 2    | 1    | 2    |
| Conflicting Approach Left  | SB   | NB   | EB   | WB   |
| Conflicting Lanes Left     | 1    | 2    | 2    | 2    |
| Conflicting Approach Right | NB   | SB   | WB   | EB   |
| Conflicting Lanes Right    | 2    | 1    | 2    | 2    |
| HCM Control Delay          | 12.4 | 11.9 | 10.4 | 10.8 |
| HCM LOS                    | B    | B    | B    | B    |

| Lane                   | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 45%   | 0%    | 100%  | 0%    | 100%  | 0%    | 25%   |
| Vol Thru, %            | 55%   | 0%    | 0%    | 80%   | 0%    | 89%   | 43%   |
| Vol Right, %           | 0%    | 100%  | 0%    | 20%   | 0%    | 11%   | 33%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 105   | 53    | 27    | 238   | 30    | 209   | 80    |
| LT Vol                 | 47    | 0     | 27    | 0     | 30    | 0     | 20    |
| Through Vol            | 58    | 0     | 0     | 190   | 0     | 185   | 34    |
| RT Vol                 | 0     | 53    | 0     | 48    | 0     | 24    | 26    |
| Lane Flow Rate         | 124   | 62    | 32    | 280   | 35    | 246   | 94    |
| Geometry Grp           | 5     | 5     | 5     | 5     | 5     | 5     | 4b    |
| Degree of Util (X)     | 0.224 | 0.097 | 0.055 | 0.438 | 0.062 | 0.393 | 0.169 |
| Departure Headway (Hd) | 6.537 | 5.601 | 6.284 | 5.635 | 6.335 | 5.747 | 6.446 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 548   | 638   | 570   | 638   | 566   | 627   | 556   |
| Service Time           | 4.28  | 3.344 | 4.02  | 3.371 | 4.071 | 3.483 | 4.494 |
| HCM Lane V/C Ratio     | 0.226 | 0.097 | 0.056 | 0.439 | 0.062 | 0.392 | 0.169 |
| HCM Control Delay      | 11.2  | 8.9   | 9.4   | 12.7  | 9.5   | 12.2  | 10.8  |
| HCM Lane LOS           | B     | A     | A     | B     | A     | B     | B     |
| HCM 95th-tile Q        | 0.9   | 0.3   | 0.2   | 2.2   | 0.2   | 1.9   | 0.6   |

HCM 6th Signalized Intersection Summary  
 20: Washington Ave & 6th St

04/29/2024



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 226  | 20   | 91   | 491  | 121  | 128  |
| Future Volume (veh/h)        | 226  | 20   | 91   | 491  | 121  | 128  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 0.98 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1547 | 1547 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 254  | 22   | 102  | 552  | 136  | 144  |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %         | 1    | 1    | 5    | 5    | 2    | 2    |
| Cap, veh/h                   | 274  | 24   | 726  | 1124 | 451  | 477  |
| Arrive On Green              | 0.20 | 0.20 | 0.05 | 0.73 | 0.64 | 0.64 |
| Sat Flow, veh/h              | 1380 | 120  | 1474 | 1547 | 703  | 745  |
| Grp Volume(v), veh/h         | 277  | 0    | 102  | 552  | 0    | 280  |
| Grp Sat Flow(s),veh/h/ln     | 1505 | 0    | 1474 | 1547 | 0    | 1448 |
| Q Serve(g_s), s              | 21.7 | 0.0  | 2.6  | 18.2 | 0.0  | 10.3 |
| Cycle Q Clear(g_c), s        | 21.7 | 0.0  | 2.6  | 18.2 | 0.0  | 10.3 |
| Prop In Lane                 | 0.92 | 0.08 | 1.00 |      |      | 0.51 |
| Lane Grp Cap(c), veh/h       | 299  | 0    | 726  | 1124 | 0    | 928  |
| V/C Ratio(X)                 | 0.93 | 0.00 | 0.14 | 0.49 | 0.00 | 0.30 |
| Avail Cap(c_a), veh/h        | 320  | 0    | 845  | 1124 | 0    | 928  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 0.85 | 0.85 | 0.00 | 0.42 |
| Uniform Delay (d), s/veh     | 47.2 | 0.0  | 6.3  | 7.0  | 0.0  | 9.6  |
| Incr Delay (d2), s/veh       | 30.7 | 0.0  | 0.1  | 1.3  | 0.0  | 0.4  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lt     | 6.1  | 0.0  | 1.4  | 9.6  | 0.0  | 5.3  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 77.9 | 0.0  | 6.4  | 8.3  | 0.0  | 10.0 |
| LnGrp LOS                    | E    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          | 277  |      |      | 654  | 280  |      |
| Approach Delay, s/veh        | 77.9 |      |      | 8.0  | 10.0 |      |
| Approach LOS                 | E    |      |      | A    | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 91.7 |      | 28.3 | 10.3 | 81.4 |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  | 4.5  | 4.5  |
| Max Green Setting (Gmax), s  |      | 85.5 |      | 25.5 | 15.5 | 65.5 |
| Max Q Clear Time (g_c+I1), s |      | 20.2 |      | 23.7 | 4.6  | 12.3 |
| Green Ext Time (p_c), s      |      | 3.6  |      | 0.1  | 0.2  | 1.7  |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 24.4 |
| HCM 6th LOS        | C    |

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 21: Warren Ave/Warren Ave (SR 303) & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔↔   |      |      | ↑    | ↗    |      | ↔    |      |      | ↖    | ↗    |
| Traffic Volume (veh/h)       | 351  | 351  | 2    | 0    | 417  | 113  | 9    | 7    | 2    | 101  | 2    | 325  |
| Future Volume (veh/h)        | 351  | 351  | 2    | 0    | 417  | 113  | 9    | 7    | 2    | 101  | 2    | 325  |
| 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 |      | 0.93 | 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       | 1585 | 1585 | 1585 | 0    | 1597 | 1597 | 1610 | 1610 | 1610 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 373  | 373  | 2    | 0    | 444  | 120  | 10   | 7    | 2    | 107  | 2    | 346  |
| 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, %         | 2    | 2    | 2    | 0    | 1    | 1    | 0    | 0    | 0    | 4    | 4    | 4    |
| Cap, veh/h                   | 469  | 516  | 3    | 0    | 479  | 395  | 19   | 13   | 4    | 279  | 5    | 674  |
| Arrive On Green              | 0.32 | 0.32 | 0.32 | 0.00 | 0.30 | 0.30 | 0.02 | 0.02 | 0.02 | 0.19 | 0.19 | 0.19 |
| Sat Flow, veh/h              | 1470 | 1615 | 9    | 0    | 1597 | 1318 | 803  | 562  | 161  | 1460 | 27   | 1322 |
| Grp Volume(v), veh/h         | 383  | 0    | 365  | 0    | 444  | 120  | 19   | 0    | 0    | 109  | 0    | 346  |
| Grp Sat Flow(s),veh/h/ln     | 1511 | 0    | 1583 | 0    | 1597 | 1318 | 1526 | 0    | 0    | 1487 | 0    | 1322 |
| Q Serve(g_s), s              | 27.8 | 0.0  | 24.4 | 0.0  | 32.3 | 8.4  | 1.5  | 0.0  | 0.0  | 7.7  | 0.0  | 20.8 |
| Cycle Q Clear(g_c), s        | 27.8 | 0.0  | 24.4 | 0.0  | 32.3 | 8.4  | 1.5  | 0.0  | 0.0  | 7.7  | 0.0  | 20.8 |
| Prop In Lane                 | 0.97 |      | 0.01 | 0.00 |      | 1.00 | 0.53 |      | 0.11 | 0.98 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 482  | 0    | 505  | 0    | 479  | 395  | 36   | 0    | 0    | 284  | 0    | 674  |
| V/C Ratio(X)                 | 0.79 | 0.00 | 0.72 | 0.00 | 0.93 | 0.30 | 0.53 | 0.00 | 0.00 | 0.38 | 0.00 | 0.51 |
| Avail Cap(c_a), veh/h        | 482  | 0    | 505  | 0    | 519  | 428  | 76   | 0    | 0    | 285  | 0    | 675  |
| 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 | 0.00 | 1.00 | 0.00 | 0.93 | 0.93 | 1.00 | 0.00 | 0.00 | 0.82 | 0.00 | 0.82 |
| Uniform Delay (d), s/veh     | 37.3 | 0.0  | 36.1 | 0.0  | 40.7 | 32.4 | 57.9 | 0.0  | 0.0  | 42.4 | 0.0  | 19.5 |
| Incr Delay (d2), s/veh       | 10.1 | 0.0  | 6.2  | 0.0  | 25.2 | 1.8  | 16.3 | 0.0  | 0.0  | 1.9  | 0.0  | 1.4  |
| 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(95%),veh/ln     | 7.2  | 0.0  | 15.6 | 0.0  | 22.4 | 5.3  | 1.3  | 0.0  | 0.0  | 5.4  | 0.0  | 15.7 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 47.4 | 0.0  | 42.3 | 0.0  | 65.9 | 34.2 | 74.2 | 0.0  | 0.0  | 44.3 | 0.0  | 20.9 |
| LnGrp LOS                    | D    | A    | D    | A    | E    | C    | E    | A    | A    | D    | A    | C    |
| Approach Vol, veh/h          |      | 748  |      |      | 564  |      |      | 19   |      |      | 455  |      |
| Approach Delay, s/veh        |      | 44.9 |      |      | 59.2 |      |      | 74.2 |      |      | 26.5 |      |
| Approach LOS                 |      | D    |      |      | E    |      |      | E    |      |      | C    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 7.8  |      | 43.3 |      | 27.9 |      | 41.0 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 5.0  |      | 5.0  |      | 5.0  |      | 5.0  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 6.0  |      | 32.0 |      | 23.0 |      | 39.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 3.5  |      | 29.8 |      | 22.8 |      | 34.3 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.0  |      | 1.5  |      | 0.1  |      | 1.6  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      |      | 45.0 |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      |      | D    |

# HCM 6th Signalized Intersection Summary

## 22: Warren Ave (SR 303) & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR   | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|-------|-------|------|------|------|
| Lane Configurations          | ↖ ↗  | ↘    |      |       | ↖ ↗  |      | ↖ ↗  | ↖ ↗   |       | ↖ ↗  | ↖ ↗  | ↖ ↗  |
| Traffic Volume (veh/h)       | 664  | 204  | 16   | 0     | 374  | 206  | 20   | 820   | 8     | 77   | 582  | 531  |
| Future Volume (veh/h)        | 664  | 204  | 16   | 0     | 374  | 206  | 20   | 820   | 8     | 77   | 582  | 531  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0     | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00  |      | 0.99 | 1.00 |       | 0.99  | 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       | 1585 | 1585 | 1585 | 0     | 1572 | 1572 | 1597 | 1597  | 1597  | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 678  | 208  | 16   | 0     | 382  | 210  | 20   | 837   | 8     | 79   | 594  | 542  |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98  | 0.98 | 0.98 | 0.98 | 0.98  | 0.98  | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 0     | 3    | 3    | 1    | 1     | 1     | 4    | 4    | 4    |
| Cap, veh/h                   | 671  | 733  | 56   | 0     | 429  | 232  | 252  | 808   | 8     | 189  | 710  | 616  |
| Arrive On Green              | 0.08 | 0.17 | 0.17 | 0.00  | 0.23 | 0.23 | 0.04 | 0.09  | 0.09  | 0.09 | 0.24 | 0.24 |
| Sat Flow, veh/h              | 2928 | 1452 | 112  | 0     | 1945 | 1011 | 1521 | 3080  | 29    | 1485 | 2964 | 1307 |
| Grp Volume(v), veh/h         | 678  | 0    | 224  | 0     | 305  | 287  | 20   | 412   | 433   | 79   | 594  | 542  |
| Grp Sat Flow(s),veh/h/ln     | 1464 | 0    | 1564 | 0     | 1494 | 1384 | 1521 | 1518  | 1592  | 1485 | 1482 | 1307 |
| Q Serve(g_s), s              | 27.5 | 0.0  | 15.0 | 0.0   | 23.7 | 24.2 | 0.0  | 31.5  | 31.5  | 1.0  | 22.9 | 17.1 |
| Cycle Q Clear(g_c), s        | 27.5 | 0.0  | 15.0 | 0.0   | 23.7 | 24.2 | 0.0  | 31.5  | 31.5  | 1.0  | 22.9 | 17.1 |
| Prop In Lane                 | 1.00 |      | 0.07 | 0.00  |      | 0.73 | 1.00 |       | 0.02  | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 671  | 0    | 789  | 0     | 343  | 318  | 252  | 398   | 418   | 189  | 710  | 616  |
| V/C Ratio(X)                 | 1.01 | 0.00 | 0.28 | 0.00  | 0.89 | 0.90 | 0.08 | 1.04  | 1.04  | 0.42 | 0.84 | 0.88 |
| Avail Cap(c_a), veh/h        | 671  | 0    | 827  | 0     | 367  | 340  | 252  | 398   | 418   | 189  | 778  | 646  |
| HCM Platoon Ratio            | 0.33 | 0.33 | 0.33 | 1.00  | 1.00 | 1.00 | 0.33 | 0.33  | 0.33  | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 1.00 | 0.00  | 0.67 | 0.67 | 0.82 | 0.82  | 0.82  | 0.60 | 0.60 | 0.60 |
| Uniform Delay (d), s/veh     | 55.5 | 0.0  | 31.0 | 0.0   | 44.7 | 44.9 | 48.0 | 54.8  | 54.8  | 50.1 | 43.4 | 28.7 |
| Incr Delay (d2), s/veh       | 37.3 | 0.0  | 0.2  | 0.0   | 15.6 | 18.9 | 0.1  | 50.2  | 49.3  | 1.1  | 7.1  | 10.7 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 20.6 | 0.0  | 10.5 | 0.0   | 14.5 | 14.2 | 1.0  | 25.3  | 26.3  | 4.0  | 12.9 | 29.7 |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |       |       |      |      |      |
| LnGrp Delay(d),s/veh         | 92.8 | 0.0  | 31.2 | 0.0   | 60.3 | 63.8 | 48.2 | 105.0 | 104.1 | 51.2 | 50.5 | 39.4 |
| LnGrp LOS                    | F    | A    | C    | A     | E    | E    | D    | F     | F     | D    | D    | D    |
| Approach Vol, veh/h          |      | 902  |      |       | 592  |      |      | 865   |       |      | 1215 |      |
| Approach Delay, s/veh        |      | 77.5 |      |       | 62.0 |      |      | 103.2 |       |      | 45.6 |      |
| Approach LOS                 |      | E    |      |       | E    |      |      | F     |       |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4     | 5    | 6    | 7    | 8     |       |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.9  | 37.0 |      | 67.1  | 18.7 | 34.3 | 34.0 | 33.1  |       |      |      |      |
| Change Period (Y+Rc), s      | 5.5  | 5.5  |      | * 6.5 | 5.5  | 5.5  | 6.5  | 5.5   |       |      |      |      |
| Max Green Setting (Gmax), s  | 31.5 | 31.5 |      | * 64  | 8.5  | 31.5 | 27.5 | 29.5  |       |      |      |      |
| Max Q Clear Time (g_c+13), s | 33.5 | 33.5 |      | 17.0  | 2.0  | 24.9 | 29.5 | 26.2  |       |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 0.0  |      | 1.4   | 0.0  | 3.8  | 0.0  | 1.2   |       |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 70.3 |
| HCM 6th LOS        | E    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 23: Warren Ave (SR 303) & 13th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    | ↕    |
| Traffic Volume (veh/h)       | 196  | 9    | 25   | 5    | 9    | 10   | 0    | 1676 | 3    | 0    | 1120 | 212  |
| Future Volume (veh/h)        | 196  | 9    | 25   | 5    | 9    | 10   | 0    | 1676 | 3    | 0    | 1120 | 212  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.98 |      | 0.98 | 1.00 |      | 0.98 | 1.00 |      | 0.99 | 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       | 1585 | 1585 | 1585 | 1610 | 1610 | 1610 | 0    | 1597 | 1597 | 0    | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 204  | 9    | 26   | 5    | 9    | 10   | 0    | 1746 | 3    | 0    | 1167 | 221  |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 0    | 0    | 0    | 0    | 1    | 1    | 0    | 4    | 4    |
| Cap, veh/h                   | 286  | 10   | 29   | 80   | 130  | 124  | 0    | 2267 | 4    | 0    | 1813 | 341  |
| Arrive On Green              | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Sat Flow, veh/h              | 1175 | 52   | 150  | 223  | 662  | 632  | 0    | 3189 | 5    | 0    | 2563 | 468  |
| Grp Volume(v), veh/h         | 239  | 0    | 0    | 24   | 0    | 0    | 0    | 852  | 897  | 0    | 693  | 695  |
| Grp Sat Flow(s),veh/h/ln     | 1376 | 0    | 0    | 1517 | 0    | 0    | 0    | 1518 | 1596 | 0    | 1482 | 1471 |
| Q Serve(g_s), s              | 18.7 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 20.3 | 0.0  | 0.0  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Prop In Lane                 | 0.85 |      | 0.11 | 0.21 |      | 0.42 | 0.00 |      | 0.00 | 0.00 |      | 0.32 |
| Lane Grp Cap(c), veh/h       | 325  | 0    | 0    | 333  | 0    | 0    | 0    | 1107 | 1164 | 0    | 1081 | 1073 |
| V/C Ratio(X)                 | 0.74 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.77 | 0.77 | 0.00 | 0.64 | 0.65 |
| Avail Cap(c_a), veh/h        | 439  | 0    | 0    | 453  | 0    | 0    | 0    | 1107 | 1164 | 0    | 1081 | 1073 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 2.00 | 2.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.12 | 0.00 | 0.70 | 0.70 |
| Uniform Delay (d), s/veh     | 46.9 | 0.0  | 0.0  | 39.5 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 4.8  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.6  | 0.6  | 0.0  | 2.1  | 2.1  |
| 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(95%),veh/ln     | 1.9  | 0.0  | 0.0  | 1.1  | 0.0  | 0.0  | 0.0  | 0.4  | 0.4  | 0.0  | 1.1  | 1.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 51.7 | 0.0  | 0.0  | 39.6 | 0.0  | 0.0  | 0.0  | 0.6  | 0.6  | 0.0  | 2.1  | 2.1  |
| LnGrp LOS                    | D    | A    | A    | D    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 239  |      |      | 24   |      |      | 1749 |      |      | 1388 |      |
| Approach Delay, s/veh        |      | 51.7 |      |      | 39.6 |      |      | 0.6  |      |      | 2.1  |      |
| Approach LOS                 |      | D    |      |      | D    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 92.0 |      | 28.0 |      | 92.0 |      | 28.0 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 77.5 |      | 33.5 |      | 77.5 |      | 33.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 2.0  |      | 22.3 |      | 2.0  |      | 3.6  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 39.8 |      | 1.2  |      | 46.7 |      | 0.1  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 5.1  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 24: Warren Ave (SR 303) & 16th St

04/29/2024



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR   |
|------------------------------|------|------|------|------|------|-------|
| Lane Configurations          | ↔↔   |      | ↔    | ↑↑   | ↑↑   | ↔     |
| Traffic Volume (veh/h)       | 86   | 45   | 76   | 1823 | 1296 | 78    |
| Future Volume (veh/h)        | 86   | 45   | 76   | 1823 | 1296 | 78    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00  |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  |
| Work Zone On Approach        | No   |      |      | No   | No   |       |
| Adj Sat Flow, veh/h/ln       | 1547 | 1547 | 1585 | 1585 | 1547 | 1547  |
| Adj Flow Rate, veh/h         | 68   | 69   | 78   | 1879 | 1336 | 0     |
| Peak Hour Factor             | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97  |
| Percent Heavy Veh, %         | 5    | 5    | 2    | 2    | 5    | 5     |
| Cap, veh/h                   | 105  | 93   | 94   | 2571 | 2216 |       |
| Arrive On Green              | 0.07 | 0.07 | 0.12 | 1.00 | 0.75 | 0.00  |
| Sat Flow, veh/h              | 1474 | 1311 | 1509 | 3091 | 3017 | 1311  |
| Grp Volume(v), veh/h         | 68   | 69   | 78   | 1879 | 1336 | 0     |
| Grp Sat Flow(s),veh/h/ln     | 1474 | 1311 | 1509 | 1506 | 1470 | 1311  |
| Q Serve(g_s), s              | 5.4  | 6.2  | 6.1  | 0.0  | 24.6 | 0.0   |
| Cycle Q Clear(g_c), s        | 5.4  | 6.2  | 6.1  | 0.0  | 24.6 | 0.0   |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 1.00  |
| Lane Grp Cap(c), veh/h       | 105  | 93   | 94   | 2571 | 2216 |       |
| V/C Ratio(X)                 | 0.65 | 0.74 | 0.83 | 0.73 | 0.60 |       |
| Avail Cap(c_a), veh/h        | 325  | 290  | 132  | 2571 | 2216 |       |
| HCM Platoon Ratio            | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00  |
| Upstream Filter(I)           | 1.00 | 1.00 | 0.36 | 0.36 | 1.00 | 0.00  |
| Uniform Delay (d), s/veh     | 54.3 | 54.6 | 51.9 | 0.0  | 6.7  | 0.0   |
| Incr Delay (d2), s/veh       | 7.8  | 12.8 | 11.4 | 0.7  | 1.2  | 0.0   |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| %ile BackOfQ(95%),veh/ln     | 4.0  | 4.3  | 4.0  | 0.4  | 11.2 | 0.0   |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |
| LnGrp Delay(d),s/veh         | 62.1 | 67.4 | 63.3 | 0.7  | 7.9  | 0.0   |
| LnGrp LOS                    | E    | E    | E    | A    | A    |       |
| Approach Vol, veh/h          | 137  |      |      | 1957 | 1336 |       |
| Approach Delay, s/veh        | 64.8 |      |      | 3.2  | 7.9  |       |
| Approach LOS                 | E    |      |      | A    | A    |       |
| Timer - Assigned Phs         |      | 2    | 3    | 4    |      | 8     |
| Phs Duration (G+Y+Rc), s     |      | 13.0 | 12.0 | 95.0 |      | 107.0 |
| Change Period (Y+Rc), s      |      | 4.5  | 4.5  | 4.5  |      | 4.5   |
| Max Green Setting (Gmax), s  |      | 26.5 | 10.5 | 69.5 |      | 84.5  |
| Max Q Clear Time (g_c+I1), s |      | 8.2  | 8.1  | 26.6 |      | 2.0   |
| Green Ext Time (p_c), s      |      | 0.4  | 0.0  | 20.3 |      | 48.4  |

Intersection Summary

|                    |     |
|--------------------|-----|
| HCM 6th Ctrl Delay | 7.5 |
| HCM 6th LOS        | A   |

Notes

User approved volume balancing among the lanes for turning movement.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
 25: Wheaton Way (SR 303) & Sheridan Rd

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL   | WBT   | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|-------|-------|------|------|------|------|------|------|------|
| Lane Configurations          |       |      |      |       |       |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 54    | 46   | 147  | 141   | 51    | 84   | 166  | 1501 | 155  | 123  | 992  | 39   |
| Future Volume (veh/h)        | 54    | 46   | 147  | 141   | 51    | 84   | 166  | 1501 | 155  | 123  | 992  | 39   |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0     | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.99  |      | 0.99 | 0.99  |       | 0.99 | 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       | 1585  | 1585 | 1585 | 1597  | 1597  | 1597 | 1585 | 1585 | 1585 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 56    | 47   | 9    | 145   | 53    | 5    | 171  | 1547 | 108  | 127  | 1023 | 38   |
| 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, %         | 2     | 2    | 2    | 1     | 1     | 1    | 2    | 2    | 2    | 3    | 3    | 3    |
| Cap, veh/h                   | 145   | 103  | 86   | 156   | 104   | 87   | 617  | 1582 | 705  | 338  | 1146 | 43   |
| Arrive On Green              | 0.04  | 0.06 | 0.06 | 0.04  | 0.06  | 0.06 | 0.36 | 0.53 | 0.53 | 0.23 | 0.39 | 0.39 |
| Sat Flow, veh/h              | 1509  | 1585 | 1324 | 1521  | 1597  | 1335 | 1509 | 3011 | 1342 | 1497 | 2937 | 109  |
| Grp Volume(v), veh/h         | 56    | 47   | 9    | 145   | 53    | 5    | 171  | 1547 | 108  | 127  | 520  | 541  |
| Grp Sat Flow(s),veh/h/ln     | 1509  | 1585 | 1324 | 1521  | 1597  | 1335 | 1509 | 1506 | 1342 | 1497 | 1494 | 1552 |
| Q Serve(g_s), s              | 5.5   | 4.6  | 0.6  | 6.5   | 5.1   | 0.4  | 4.4  | 80.2 | 5.1  | 11.5 | 52.2 | 52.2 |
| Cycle Q Clear(g_c), s        | 5.5   | 4.6  | 0.6  | 6.5   | 5.1   | 0.4  | 4.4  | 80.2 | 5.1  | 11.5 | 52.2 | 52.2 |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00  |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.07 |
| Lane Grp Cap(c), veh/h       | 145   | 103  | 86   | 156   | 104   | 87   | 617  | 1582 | 705  | 338  | 583  | 605  |
| V/C Ratio(X)                 | 0.39  | 0.46 | 0.10 | 0.93  | 0.51  | 0.06 | 0.28 | 0.98 | 0.15 | 0.38 | 0.89 | 0.89 |
| Avail Cap(c_a), veh/h        | 145   | 308  | 257  | 156   | 311   | 259  | 617  | 1588 | 708  | 338  | 779  | 809  |
| 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 | 0.71 | 0.71 | 0.71 |
| Uniform Delay (d), s/veh     | 67.0  | 72.1 | 20.3 | 73.2  | 72.4  | 32.7 | 32.5 | 37.1 | 11.4 | 52.5 | 45.7 | 45.7 |
| Incr Delay (d2), s/veh       | 1.7   | 3.2  | 0.5  | 52.4  | 3.9   | 0.3  | 0.3  | 17.9 | 0.5  | 0.6  | 14.1 | 13.7 |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 4.0   | 3.6  | 0.7  | 9.4   | 4.0   | 0.4  | 8.1  | 42.3 | 4.0  | 7.3  | 28.1 | 28.9 |
| Unsig. Movement Delay, s/veh |       |      |      |       |       |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 68.7  | 75.3 | 20.9 | 125.7 | 76.2  | 33.0 | 32.8 | 55.0 | 11.9 | 53.0 | 59.8 | 59.4 |
| LnGrp LOS                    | E     | E    | C    | F     | E     | C    | C    | D    | B    | D    | E    | E    |
| Approach Vol, veh/h          |       | 112  |      |       | 203   |      |      | 1826 |      |      | 1188 |      |
| Approach Delay, s/veh        |       | 67.6 |      |       | 110.5 |      |      | 50.3 |      |      | 58.9 |      |
| Approach LOS                 |       | E    |      |       | F     |      |      | D    |      |      | E    |      |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4     | 5     | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 42.1  | 90.1 | 12.0 | 15.9  | 63.7  | 68.4 | 12.0 | 15.9 |      |      |      |      |
| Change Period (Y+Rc), s      | 6.0   | * 6  | 5.5  | 5.5   | 6.0   | 6.0  | 6.0  | 5.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 16.0  | * 84 | 6.5  | 31.1  | 16.0  | 83.4 | 6.0  | 31.1 |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 113.5 | 82.2 | 8.5  | 6.6   | 6.4   | 54.2 | 7.5  | 7.1  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1   | 1.9  | 0.0  | 0.2   | 0.4   | 8.2  | 0.0  | 0.2  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 57.6 |
| HCM 6th LOS        | E    |

Notes

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

HCM 6th Signalized Intersection Summary  
 26: Wheaton Way (SR 303) & Sylvan Way

04/29/2024



| Movement                      | EBL   | EBT   | EBR  | WBL   | WBT   | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|-------|-------|------|-------|-------|-------|------|------|------|------|------|------|
| Lane Configurations           |       |       |      |       |       |       |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 111   | 108   | 116  | 107   | 83    | 152   | 99   | 1309 | 127  | 159  | 1032 | 73   |
| Future Volume (veh/h)         | 111   | 108   | 116  | 107   | 83    | 152   | 99   | 1309 | 127  | 159  | 1032 | 73   |
| 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 |      | 1.00 | 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        | 1585  | 1585  | 1585 | 1572  | 1572  | 1572  | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h          | 114   | 111   | 120  | 110   | 86    | 157   | 102  | 1349 | 131  | 164  | 1064 | 75   |
| 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, %          | 2     | 2     | 2    | 3     | 3     | 3     | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                    | 113   | 227   | 187  | 103   | 216   | 176   | 301  | 1830 | 812  | 345  | 1778 | 125  |
| Arrive On Green               | 0.08  | 0.14  | 0.14 | 0.07  | 0.14  | 0.14  | 0.08 | 1.00 | 1.00 | 0.05 | 0.62 | 0.62 |
| Sat Flow, veh/h               | 1509  | 1585  | 1301 | 1497  | 1572  | 1283  | 1509 | 3011 | 1336 | 1509 | 2850 | 201  |
| Grp Volume(v), veh/h          | 114   | 111   | 120  | 110   | 86    | 157   | 102  | 1349 | 131  | 164  | 562  | 577  |
| Grp Sat Flow(s),veh/h/ln      | 1509  | 1585  | 1301 | 1497  | 1572  | 1283  | 1509 | 1506 | 1336 | 1509 | 1506 | 1545 |
| Q Serve(g_s), s               | 12.0  | 10.3  | 13.9 | 11.0  | 8.0   | 19.2  | 4.2  | 0.0  | 0.0  | 6.6  | 35.8 | 35.9 |
| Cycle Q Clear(g_c), s         | 12.0  | 10.3  | 13.9 | 11.0  | 8.0   | 19.2  | 4.2  | 0.0  | 0.0  | 6.6  | 35.8 | 35.9 |
| Prop In Lane                  | 1.00  |       | 1.00 | 1.00  |       | 1.00  | 1.00 |      | 1.00 | 1.00 |      | 0.13 |
| Lane Grp Cap(c), veh/h        | 113   | 227   | 187  | 103   | 216   | 176   | 301  | 1830 | 812  | 345  | 939  | 964  |
| V/C Ratio(X)                  | 1.01  | 0.49  | 0.64 | 1.07  | 0.40  | 0.89  | 0.34 | 0.74 | 0.16 | 0.48 | 0.60 | 0.60 |
| Avail Cap(c_a), veh/h         | 113   | 317   | 260  | 103   | 305   | 249   | 337  | 1830 | 812  | 403  | 939  | 964  |
| HCM Platoon Ratio             | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 0.53 | 0.53 | 0.53 | 0.79 | 0.79 | 0.79 |
| Uniform Delay (d), s/veh      | 74.0  | 63.1  | 64.7 | 74.5  | 63.0  | 67.9  | 14.4 | 0.0  | 0.0  | 10.2 | 18.1 | 18.1 |
| Incr Delay (d2), s/veh        | 86.5  | 1.6   | 3.7  | 108.4 | 1.2   | 23.9  | 0.4  | 1.4  | 0.2  | 0.8  | 2.2  | 2.2  |
| 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(95%),veh/ln      | 1.9   | 7.7   | 8.5  | 12.1  | 6.0   | 12.1  | 2.5  | 0.7  | 0.1  | 4.1  | 18.2 | 18.6 |
| Unsig. Movement Delay, s/veh  |       |       |      |       |       |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 160.5 | 64.7  | 68.3 | 182.9 | 64.2  | 91.8  | 14.8 | 1.4  | 0.2  | 11.0 | 20.3 | 20.2 |
| LnGrp LOS                     | F     | E     | E    | F     | E     | F     | B    | A    | A    | B    | C    | C    |
| Approach Vol, veh/h           |       | 345   |      |       | 353   |       |      | 1582 |      |      | 1303 |      |
| Approach Delay, s/veh         |       | 97.6  |      |       | 113.4 |       |      | 2.2  |      |      | 19.1 |      |
| Approach LOS                  |       | F     |      |       | F     |       |      | A    |      |      | B    |      |
| Timer - Assigned Phs          | 1     | 2     | 3    | 4     | 5     | 6     | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 3.8   | 102.3 | 16.0 | 28.0  | 11.2  | 104.8 | 17.0 | 27.0 |      |      |      |      |
| 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   | 15.0  | 82.0  | 11.0 | 32.0  | 10.0  | 87.0  | 12.0 | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/3), s | 19.6  | 2.0   | 13.0 | 15.9  | 6.2   | 37.9  | 14.0 | 21.2 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.2   | 17.3  | 0.0  | 0.9   | 0.1   | 10.2  | 0.0  | 0.7  |      |      |      |      |
| <b>Intersection Summary</b>   |       |       |      |       |       |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay            |       |       |      |       |       |       |      |      |      |      | 28.5 |      |
| HCM 6th LOS                   |       |       |      |       |       |       |      |      |      |      | C    |      |

HCM 6th Signalized Intersection Summary  
 27: Wheaton Way (SR 303) & Private Drwy/Hollis St

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL  | WBT   | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| Lane Configurations          |       | ↕    |      | ↗    | ↘     |      | ↗    | ↕    |      | ↗    | ↕    | ↘    |
| Traffic Volume (veh/h)       | 0     | 0    | 2    | 55   | 0     | 41   | 1    | 1490 | 41   | 54   | 1335 | 0    |
| Future Volume (veh/h)        | 0     | 0    | 2    | 55   | 0     | 41   | 1    | 1490 | 41   | 54   | 1335 | 0    |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 0.89 | 0.89 |       | 0.96 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1610  | 1610 | 1610 | 1572 | 1572  | 1572 | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 0     | 0    | 2    | 57   | 0     | 42   | 1    | 1536 | 42   | 56   | 1376 | 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     | 0    | 0    | 3    | 3     | 3    | 1    | 1    | 1    | 1    | 1    | 1    |
| Cap, veh/h                   | 0     | 0    | 93   | 138  | 0     | 97   | 363  | 2402 | 66   | 288  | 2515 | 0    |
| Arrive On Green              | 0.00  | 0.00 | 0.08 | 0.08 | 0.00  | 0.08 | 0.00 | 0.80 | 0.80 | 0.05 | 1.00 | 0.00 |
| Sat Flow, veh/h              | 0     | 0    | 1219 | 1256 | 0     | 1275 | 1521 | 3018 | 82   | 1521 | 3115 | 0    |
| Grp Volume(v), veh/h         | 0     | 0    | 2    | 57   | 0     | 42   | 1    | 771  | 807  | 56   | 1376 | 0    |
| Grp Sat Flow(s),veh/h/ln     | 0     | 0    | 1219 | 1256 | 0     | 1275 | 1521 | 1518 | 1582 | 1521 | 1518 | 0    |
| Q Serve(g_s), s              | 0.0   | 0.0  | 0.2  | 7.0  | 0.0   | 5.0  | 0.0  | 33.7 | 34.0 | 1.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.0   | 0.0  | 0.2  | 7.3  | 0.0   | 5.0  | 0.0  | 33.7 | 34.0 | 1.0  | 0.0  | 0.0  |
| Prop In Lane                 | 0.00  |      | 1.00 | 1.00 |       | 1.00 | 1.00 |      | 0.05 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 0     | 0    | 93   | 138  | 0     | 97   | 363  | 1208 | 1259 | 288  | 2515 | 0    |
| V/C Ratio(X)                 | 0.00  | 0.00 | 0.02 | 0.41 | 0.00  | 0.43 | 0.00 | 0.64 | 0.64 | 0.19 | 0.55 | 0.00 |
| Avail Cap(c_a), veh/h        | 0     | 0    | 190  | 239  | 0     | 199  | 437  | 1208 | 1259 | 321  | 2515 | 0    |
| HCM Platoon Ratio            | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.33 |
| Upstream Filter(I)           | 0.00  | 0.00 | 1.00 | 1.00 | 0.00  | 1.00 | 0.71 | 0.71 | 0.71 | 0.66 | 0.66 | 0.00 |
| Uniform Delay (d), s/veh     | 0.0   | 0.0  | 68.4 | 71.8 | 0.0   | 70.6 | 3.3  | 6.8  | 6.8  | 6.8  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.0   | 0.0  | 0.1  | 2.8  | 0.0   | 4.3  | 0.0  | 1.8  | 1.8  | 0.3  | 0.6  | 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(95%),veh/ln     | 0.0   | 0.0  | 0.1  | 4.3  | 0.0   | 3.2  | 0.0  | 14.8 | 15.4 | 0.9  | 0.4  | 0.0  |
| Unsig. Movement Delay, s/veh |       |      |      |      |       |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 0.0   | 0.0  | 68.6 | 74.6 | 0.0   | 75.0 | 3.3  | 8.6  | 8.6  | 7.1  | 0.6  | 0.0  |
| LnGrp LOS                    | A     | A    | E    | E    | A     | E    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |       | 2    |      | 99   |       | 1579 |      | 1432 |      |      |      |      |
| Approach Delay, s/veh        |       | 68.6 |      | 74.7 |       | 8.6  |      | 0.8  |      |      |      |      |
| Approach LOS                 |       | E    |      | E    |       | A    |      | A    |      |      |      |      |
| Timer - Assigned Phs         | 1     | 2    | 4    | 5    | 6     | 8    |      |      |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 132.3 |      | 17.2 | 5.3  | 137.6 |      | 17.2 |      |      |      |      |      |
| Change Period (Y+Rc), s      | 5.0   | 5.0  | 5.0  | 5.0  | 5.0   | 5.0  | 5.0  |      |      |      |      |      |
| Max Green Setting (Gmax), s  | 111.0 |      | 25.0 | 8.0  | 112.0 |      | 25.0 |      |      |      |      |      |
| Max Q Clear Time (g_c+13), s | 36.0  |      | 2.2  | 2.0  | 2.0   |      | 9.3  |      |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1   | 32.2 |      | 0.0  | 0.0   | 27.8 |      | 0.5  |      |      |      |      |

Intersection Summary

|                    |     |
|--------------------|-----|
| HCM 6th Ctrl Delay | 7.2 |
| HCM 6th LOS        | A   |

HCM 6th Signalized Intersection Summary  
 28: Wheaton Way (SR 303) & Riddell Rd

04/29/2024



| Movement                      | EBL   | EBT  | EBR  | WBL   | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|-------|------|------|-------|------|-------|------|------|------|------|------|------|
| Lane Configurations           |       |      |      |       |      |       |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 114   | 92   | 139  | 125   | 106  | 141   | 132  | 1274 | 40   | 134  | 1079 | 133  |
| Future Volume (veh/h)         | 114   | 92   | 139  | 125   | 106  | 141   | 132  | 1274 | 40   | 134  | 1079 | 133  |
| Initial Q (Qb), veh           | 0     | 0    | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 0.95  |      | 0.99 | 1.00  |      | 0.99  | 1.00 |      | 0.99 | 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        | 1597  | 1597 | 1597 | 1585  | 1585 | 1585  | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h          | 119   | 96   | 145  | 130   | 110  | 147   | 138  | 1327 | 42   | 140  | 1124 | 139  |
| Peak Hour Factor              | 0.96  | 0.96 | 0.96 | 0.96  | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %          | 1     | 1    | 1    | 2     | 2    | 2     | 2    | 2    | 2    | 1    | 1    | 1    |
| Cap, veh/h                    | 136   | 170  | 143  | 139   | 181  | 153   | 514  | 1899 | 60   | 157  | 1246 | 554  |
| Arrive On Green               | 0.05  | 0.11 | 0.11 | 0.06  | 0.11 | 0.11  | 0.30 | 0.64 | 0.64 | 0.07 | 0.41 | 0.41 |
| Sat Flow, veh/h               | 1521  | 1597 | 1342 | 1509  | 1585 | 1336  | 1509 | 2979 | 94   | 1521 | 3035 | 1349 |
| Grp Volume(v), veh/h          | 119   | 96   | 145  | 130   | 110  | 147   | 138  | 670  | 699  | 140  | 1124 | 139  |
| Grp Sat Flow(s),veh/h/ln      | 1521  | 1597 | 1342 | 1509  | 1585 | 1336  | 1509 | 1506 | 1567 | 1521 | 1518 | 1349 |
| Q Serve(g_s), s               | 6.7   | 9.1  | 10.2 | 10.0  | 10.6 | 14.9  | 3.5  | 46.5 | 46.7 | 9.9  | 55.5 | 10.8 |
| Cycle Q Clear(g_c), s         | 6.7   | 9.1  | 10.2 | 10.0  | 10.6 | 14.9  | 3.5  | 46.5 | 46.7 | 9.9  | 55.5 | 10.8 |
| Prop In Lane                  | 1.00  |      | 1.00 | 1.00  |      | 1.00  | 1.00 |      | 0.06 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 136   | 170  | 143  | 139   | 181  | 153   | 514  | 960  | 999  | 157  | 1246 | 554  |
| V/C Ratio(X)                  | 0.87  | 0.57 | 1.02 | 0.93  | 0.61 | 0.96  | 0.27 | 0.70 | 0.70 | 0.89 | 0.90 | 0.25 |
| Avail Cap(c_a), veh/h         | 149   | 339  | 285  | 139   | 337  | 284   | 514  | 960  | 999  | 157  | 1574 | 700  |
| HCM Platoon Ratio             | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.83  | 0.83 | 0.83 | 1.00  | 1.00 | 1.00  | 0.69 | 0.69 | 0.69 | 0.79 | 0.79 | 0.79 |
| Uniform Delay (d), s/veh      | 73.2  | 68.0 | 25.7 | 72.5  | 67.4 | 51.2  | 39.4 | 18.9 | 19.0 | 40.9 | 44.1 | 31.0 |
| Incr Delay (d2), s/veh        | 32.0  | 1.8  | 33.1 | 55.9  | 2.4  | 23.9  | 0.2  | 2.9  | 2.8  | 35.2 | 8.8  | 0.9  |
| Initial Q Delay(d3),s/veh     | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr      | 9.8   | 6.8  | 8.0  | 6.1   | 7.9  | 10.2  | 6.8  | 22.3 | 23.2 | 8.6  | 29.2 | 6.6  |
| Unsig. Movement Delay, s/veh  |       |      |      |       |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 105.2 | 69.8 | 58.8 | 128.5 | 69.9 | 75.0  | 39.6 | 21.9 | 21.8 | 76.0 | 52.9 | 31.8 |
| LnGrp LOS                     | F     | E    | F    | F     | E    | E     | D    | C    | C    | E    | D    | C    |
| Approach Vol, veh/h           |       | 360  |      |       | 387  |       |      | 1507 |      |      | 1403 |      |
| Approach Delay, s/veh         |       | 77.1 |      |       | 91.5 |       |      | 23.5 |      |      | 53.1 |      |
| Approach LOS                  |       | E    |      |       | F    |       |      | C    |      |      | D    |      |
| Timer - Assigned Phs          | 1     | 2    | 3    | 4     | 5    | 6     | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 52.3  | 70.7 | 13.7 | 23.3  | 16.0 | 107.0 | 15.0 | 22.0 |      |      |      |      |
| 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   | 13.0  | 83.0 | 10.0 | 34.0  | 11.0 | 85.0  | 10.0 | 34.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/5), s | 15.5  | 57.5 | 8.7  | 16.9  | 11.9 | 48.7  | 12.0 | 12.2 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.2   | 8.2  | 0.0  | 0.8   | 0.0  | 10.2  | 0.0  | 0.8  |      |      |      |      |
| <b>Intersection Summary</b>   |       |      |      |       |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay            |       |      |      |       |      |       |      |      |      |      | 47.3 |      |
| HCM 6th LOS                   |       |      |      |       |      |       |      |      |      |      | D    |      |

HCM 6th Signalized Intersection Summary  
 30: N Callow Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔↔   |      | ↔    | ↔↔   |      | ↔    | ↑    | ↔    | ↔    | ↔    | ↔    |
| Traffic Volume (veh/h)       | 37   | 662  | 82   | 136  | 758  | 47   | 53   | 112  | 108  | 33   | 60   | 21   |
| Future Volume (veh/h)        | 37   | 662  | 82   | 136  | 758  | 47   | 53   | 112  | 108  | 33   | 60   | 21   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.97 | 1.00 |      | 0.96 | 0.97 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 39   | 690  | 85   | 142  | 790  | 49   | 55   | 117  | 112  | 34   | 62   | 22   |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 2    | 2    | 2    | 1    | 1    | 1    | 2    | 2    | 2    |
| Cap, veh/h                   | 97   | 1576 | 192  | 482  | 2096 | 130  | 67   | 313  | 256  | 188  | 126  | 45   |
| Arrive On Green              | 0.64 | 0.64 | 0.64 | 0.10 | 1.00 | 1.00 | 0.04 | 0.20 | 0.20 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h              | 100  | 2454 | 299  | 1509 | 2874 | 178  | 1521 | 1597 | 1306 | 1119 | 1104 | 392  |
| Grp Volume(v), veh/h         | 416  | 0    | 398  | 142  | 414  | 425  | 55   | 117  | 112  | 34   | 0    | 84   |
| Grp Sat Flow(s),veh/h/ln     | 1456 | 0    | 1397 | 1509 | 1506 | 1547 | 1521 | 1597 | 1306 | 1119 | 0    | 1495 |
| Q Serve(g_s), s              | 0.0  | 0.0  | 17.1 | 3.8  | 0.0  | 0.0  | 4.3  | 7.6  | 9.1  | 3.3  | 0.0  | 6.3  |
| Cycle Q Clear(g_c), s        | 15.1 | 0.0  | 17.1 | 3.8  | 0.0  | 0.0  | 4.3  | 7.6  | 9.1  | 3.3  | 0.0  | 6.3  |
| Prop In Lane                 | 0.09 |      | 0.21 | 1.00 |      | 0.12 | 1.00 |      | 1.00 | 1.00 |      | 0.26 |
| Lane Grp Cap(c), veh/h       | 967  | 0    | 897  | 482  | 1098 | 1128 | 67   | 313  | 256  | 188  | 0    | 171  |
| V/C Ratio(X)                 | 0.43 | 0.00 | 0.44 | 0.29 | 0.38 | 0.38 | 0.82 | 0.37 | 0.44 | 0.18 | 0.00 | 0.49 |
| Avail Cap(c_a), veh/h        | 967  | 0    | 897  | 540  | 1098 | 1128 | 133  | 552  | 452  | 307  | 0    | 330  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 0.85 | 0.85 | 0.85 | 0.82 | 0.82 | 0.82 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 10.4 | 0.0  | 10.7 | 7.2  | 0.0  | 0.0  | 56.9 | 41.9 | 42.4 | 48.6 | 0.0  | 49.9 |
| Incr Delay (d2), s/veh       | 1.4  | 0.0  | 1.6  | 0.3  | 0.8  | 0.8  | 17.3 | 0.6  | 1.0  | 0.5  | 0.0  | 2.2  |
| 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(95%),veh/lr     | 0.3  | 0.0  | 9.2  | 1.9  | 0.5  | 0.5  | 3.6  | 5.6  | 5.4  | 1.7  | 0.0  | 4.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 11.8 | 0.0  | 12.3 | 7.4  | 0.8  | 0.8  | 74.2 | 42.5 | 43.4 | 49.0 | 0.0  | 52.1 |
| LnGrp LOS                    | B    | A    | B    | A    | A    | A    | E    | D    | D    | D    | A    | D    |
| Approach Vol, veh/h          |      | 814  |      |      | 981  |      |      | 284  |      |      | 118  |      |
| Approach Delay, s/veh        |      | 12.1 |      |      | 1.8  |      |      | 49.0 |      |      | 51.2 |      |
| Approach LOS                 |      | B    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 28.0 |      | 92.0 | 9.8  | 18.2 | 10.4 | 81.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 41.5 |      | 69.5 | 10.5 | 26.5 | 10.5 | 54.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 11.1 |      | 2.0  | 6.3  | 8.3  | 5.8  | 19.1 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 1.1  |      | 6.5  | 0.0  | 0.5  | 0.1  | 6.4  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 14.3 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 31: Naval Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 25   | 729  | 19   | 21   | 897  | 18   | 46   | 76   | 87   | 12   | 41   | 22   |
| Future Volume (veh/h)        | 25   | 729  | 19   | 21   | 897  | 18   | 46   | 76   | 87   | 12   | 41   | 22   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 0.99 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 27   | 792  | 21   | 23   | 975  | 20   | 50   | 83   | 95   | 13   | 45   | 24   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 2    | 2    | 2    | 1    | 1    | 1    | 1    | 1    | 1    |
| Cap, veh/h                   | 45   | 2092 | 55   | 40   | 2081 | 43   | 62   | 269  | 223  | 47   | 82   | 39   |
| Arrive On Green              | 0.03 | 0.69 | 0.69 | 0.05 | 1.00 | 1.00 | 0.04 | 0.17 | 0.17 | 0.09 | 0.09 | 0.09 |
| Sat Flow, veh/h              | 1521 | 3020 | 80   | 1509 | 3017 | 62   | 1521 | 1597 | 1324 | 133  | 905  | 430  |
| Grp Volume(v), veh/h         | 27   | 398  | 415  | 23   | 486  | 509  | 50   | 83   | 95   | 82   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1583 | 1509 | 1506 | 1574 | 1521 | 1597 | 1324 | 1468 | 0    | 0    |
| Q Serve(g_s), s              | 2.1  | 13.1 | 13.1 | 1.8  | 0.0  | 0.0  | 3.9  | 5.5  | 7.7  | 1.9  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.1  | 13.1 | 13.1 | 1.8  | 0.0  | 0.0  | 3.9  | 5.5  | 7.7  | 6.4  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 0.05 | 1.00 |      | 0.04 | 1.00 |      | 1.00 | 0.16 |      | 0.29 |
| Lane Grp Cap(c), veh/h       | 45   | 1051 | 1096 | 40   | 1038 | 1085 | 62   | 269  | 223  | 167  | 0    | 0    |
| V/C Ratio(X)                 | 0.60 | 0.38 | 0.38 | 0.57 | 0.47 | 0.47 | 0.81 | 0.31 | 0.43 | 0.49 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 133  | 1051 | 1096 | 119  | 1038 | 1085 | 133  | 579  | 480  | 379  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.85 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.93 | 0.93 | 0.93 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 57.5 | 7.7  | 7.7  | 56.1 | 0.0  | 0.0  | 57.1 | 43.8 | 44.7 | 52.5 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 10.3 | 0.9  | 0.8  | 10.4 | 1.3  | 1.3  | 20.2 | 0.6  | 1.2  | 2.2  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 1.7  | 7.3  | 7.6  | 1.4  | 0.7  | 0.7  | 3.4  | 4.0  | 4.7  | 4.5  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 67.8 | 8.6  | 8.5  | 66.5 | 1.3  | 1.3  | 77.4 | 44.4 | 45.9 | 54.8 | 0.0  | 0.0  |
| LnGrp LOS                    | E    | A    | A    | E    | A    | A    | E    | D    | D    | D    | A    | A    |
| Approach Vol, veh/h          |      | 840  |      |      | 1018 |      |      | 228  |      |      | 82   |      |
| Approach Delay, s/veh        |      | 10.5 |      |      | 2.8  |      |      | 52.3 |      |      | 54.8 |      |
| Approach LOS                 |      | B    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 8    |      |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.7  | 87.6 | 9.4  | 15.3 | 8.1  | 87.3 |      | 24.7 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 9.5  | 53.5 | 10.5 | 28.5 | 10.5 | 52.5 |      | 43.5 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 13.8 | 15.1 | 5.9  | 8.4  | 4.1  | 2.0  |      | 9.7  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 6.0  | 0.0  | 0.4  | 0.0  | 8.2  |      | 0.8  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 12.9 |
| HCM 6th LOS        | B    |

# HCM 6th Signalized Intersection Summary

## 32: High Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)       | 30   | 780  | 10   | 19   | 966  | 15   | 12   | 12   | 14   | 29   | 7    | 56   |
| Future Volume (veh/h)        | 30   | 780  | 10   | 19   | 966  | 15   | 12   | 12   | 14   | 29   | 7    | 56   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.97 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1610 | 1610 | 1610 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 33   | 848  | 11   | 21   | 1050 | 16   | 13   | 13   | 15   | 32   | 8    | 61   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 2    | 2    | 2    | 0    | 0    | 0    | 2    | 2    | 2    |
| Cap, veh/h                   | 455  | 2008 | 26   | 513  | 1961 | 30   | 27   | 69   | 79   | 49   | 18   | 139  |
| Arrive On Green              | 0.07 | 1.00 | 1.00 | 0.05 | 1.00 | 1.00 | 0.02 | 0.10 | 0.10 | 0.03 | 0.12 | 0.12 |
| Sat Flow, veh/h              | 1521 | 3068 | 40   | 1509 | 3034 | 46   | 1533 | 658  | 760  | 1509 | 153  | 1168 |
| Grp Volume(v), veh/h         | 33   | 419  | 440  | 21   | 521  | 545  | 13   | 0    | 28   | 32   | 0    | 69   |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1590 | 1509 | 1506 | 1575 | 1533 | 0    | 1418 | 1509 | 0    | 1321 |
| Q Serve(g_s), s              | 0.8  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  | 1.0  | 0.0  | 2.2  | 2.5  | 0.0  | 5.8  |
| Cycle Q Clear(g_c), s        | 0.8  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  | 1.0  | 0.0  | 2.2  | 2.5  | 0.0  | 5.8  |
| Prop In Lane                 | 1.00 |      | 0.03 | 1.00 |      | 0.03 | 1.00 |      | 0.54 | 1.00 |      | 0.88 |
| Lane Grp Cap(c), veh/h       | 455  | 993  | 1041 | 513  | 973  | 1018 | 27   | 0    | 148  | 49   | 0    | 158  |
| V/C Ratio(X)                 | 0.07 | 0.42 | 0.42 | 0.04 | 0.54 | 0.54 | 0.48 | 0.00 | 0.19 | 0.65 | 0.00 | 0.44 |
| Avail Cap(c_a), veh/h        | 512  | 993  | 1041 | 582  | 973  | 1018 | 96   | 0    | 325  | 94   | 0    | 303  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 6.1  | 0.0  | 0.0  | 6.4  | 0.0  | 0.0  | 58.4 | 0.0  | 49.1 | 57.3 | 0.0  | 49.1 |
| Incr Delay (d2), s/veh       | 0.1  | 1.2  | 1.2  | 0.0  | 2.1  | 2.0  | 12.7 | 0.0  | 0.6  | 13.3 | 0.0  | 1.9  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.5  | 0.6  | 0.6  | 0.3  | 1.0  | 1.0  | 0.9  | 0.0  | 1.4  | 2.1  | 0.0  | 3.6  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 6.1  | 1.2  | 1.2  | 6.4  | 2.1  | 2.0  | 71.1 | 0.0  | 49.7 | 70.6 | 0.0  | 51.0 |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | E    | A    | D    | E    | A    | D    |
| Approach Vol, veh/h          |      | 892  |      |      | 1087 |      |      | 41   |      |      |      | 101  |
| Approach Delay, s/veh        |      | 1.4  |      |      | 2.1  |      |      | 56.5 |      |      |      | 57.2 |
| Approach LOS                 |      | A    |      |      | A    |      |      | E    |      |      |      | E    |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 9.4  | 18.0 | 8.5  | 84.0 | 7.6  | 19.8 | 9.5  | 83.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.5  | 27.5 | 8.5  | 54.5 | 7.5  | 27.5 | 8.5  | 54.5 |      |      |      |      |
| Max Q Clear Time (g_c+14), s | 14.5 | 4.2  | 2.5  | 2.0  | 3.0  | 7.8  | 2.8  | 2.0  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.1  | 0.0  | 6.6  | 0.0  | 0.3  | 0.0  | 9.2  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 5.5  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | A    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 33: Park Ave & 11th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 19   | 220  | 55   | 6    | 396  | 23   | 149  | 84   | 29   | 8    | 26   | 34   |
| Future Volume (veh/h)        | 19   | 220  | 55   | 6    | 396  | 23   | 149  | 84   | 29   | 8    | 26   | 34   |
| 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 | 0.99 |      | 0.95 | 0.99 |      | 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       | 1572 | 1572 | 1572 | 1560 | 1560 | 1560 | 1610 | 1610 | 1610 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 21   | 244  | 61   | 7    | 440  | 26   | 166  | 93   | 32   | 9    | 29   | 38   |
| Peak Hour Factor             | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, %         | 3    | 3    | 3    | 4    | 4    | 4    | 0    | 0    | 0    | 2    | 2    | 2    |
| Cap, veh/h                   | 45   | 625  | 507  | 16   | 551  | 33   | 245  | 111  | 464  | 77   | 167  | 465  |
| Arrive On Green              | 0.03 | 0.40 | 0.40 | 0.01 | 0.38 | 0.38 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| Sat Flow, veh/h              | 1497 | 1572 | 1275 | 1485 | 1455 | 86   | 398  | 311  | 1302 | 0    | 467  | 1303 |
| Grp Volume(v), veh/h         | 21   | 244  | 61   | 7    | 0    | 466  | 259  | 0    | 32   | 38   | 0    | 38   |
| Grp Sat Flow(s),veh/h/ln     | 1497 | 1572 | 1275 | 1485 | 0    | 1541 | 709  | 0    | 1302 | 467  | 0    | 1303 |
| Q Serve(g_s), s              | 0.8  | 6.4  | 1.7  | 0.3  | 0.0  | 15.5 | 0.0  | 0.0  | 0.9  | 0.0  | 0.0  | 1.1  |
| Cycle Q Clear(g_c), s        | 0.8  | 6.4  | 1.7  | 0.3  | 0.0  | 15.5 | 20.5 | 0.0  | 0.9  | 20.5 | 0.0  | 1.1  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 0.06 | 0.64 |      | 1.00 | 0.24 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 45   | 625  | 507  | 16   | 0    | 584  | 356  | 0    | 464  | 244  | 0    | 465  |
| V/C Ratio(X)                 | 0.47 | 0.39 | 0.12 | 0.43 | 0.00 | 0.80 | 0.73 | 0.00 | 0.07 | 0.16 | 0.00 | 0.08 |
| Avail Cap(c_a), veh/h        | 534  | 1792 | 1453 | 530  | 0    | 1757 | 356  | 0    | 464  | 244  | 0    | 465  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 27.4 | 12.4 | 11.0 | 28.2 | 0.0  | 15.9 | 18.0 | 0.0  | 12.2 | 14.0 | 0.0  | 12.2 |
| Incr Delay (d2), s/veh       | 7.6  | 0.4  | 0.1  | 16.6 | 0.0  | 2.6  | 7.3  | 0.0  | 0.1  | 0.3  | 0.0  | 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(95%),veh/lr     | 0.7  | 3.6  | 0.8  | 0.3  | 0.0  | 8.8  | 6.8  | 0.0  | 0.4  | 0.6  | 0.0  | 0.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 35.0 | 12.8 | 11.1 | 44.8 | 0.0  | 18.5 | 25.4 | 0.0  | 12.3 | 14.3 | 0.0  | 12.3 |
| LnGrp LOS                    | C    | B    | B    | D    | A    | B    | C    | A    | B    | B    | A    | B    |
| Approach Vol, veh/h          |      | 326  |      |      | 473  |      |      | 291  |      |      | 76   |      |
| Approach Delay, s/veh        |      | 13.9 |      |      | 18.9 |      |      | 23.9 |      |      | 13.3 |      |
| Approach LOS                 |      | B    |      |      | B    |      |      | C    |      |      | B    |      |
| Timer - Assigned Phs         |      | 2    | 3    | 4    |      | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 25.0 | 5.1  | 27.3 |      | 25.0 | 6.2  | 26.3 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 20.5 | 20.5 | 65.5 |      | 20.5 | 20.5 | 65.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 22.5 | 2.3  | 8.4  |      | 22.5 | 2.8  | 17.5 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.0  | 0.0  | 1.8  |      | 0.0  | 0.0  | 3.4  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 18.4 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 34: Washington Ave & Manette Bridge

04/29/2024



| Movement                      | WBL   | WBR  | NBT  | NBR  | SBL   | SBT  |
|-------------------------------|-------|------|------|------|-------|------|
| Lane Configurations           |       |      |      |      |       |      |
| Traffic Volume (veh/h)        | 226   | 168  | 164  | 551  | 177   | 26   |
| Future Volume (veh/h)         | 226   | 168  | 164  | 551  | 177   | 26   |
| Initial Q (Qb), veh           | 0     | 0    | 0    | 0    | 0     | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00  | 1.00 |      | 0.96 | 1.00  |      |
| Parking Bus, Adj              | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach         | No    |      | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln        | 1572  | 1572 | 1560 | 1560 | 1585  | 1585 |
| Adj Flow Rate, veh/h          | 240   | 0    | 174  | 586  | 188   | 28   |
| Peak Hour Factor              | 0.94  | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 |
| Percent Heavy Veh, %          | 3     | 3    | 4    | 4    | 2     | 2    |
| Cap, veh/h                    | 259   |      | 179  | 603  | 209   | 1209 |
| Arrive On Green               | 0.17  | 0.00 | 0.59 | 0.59 | 0.14  | 0.76 |
| Sat Flow, veh/h               | 1497  | 1332 | 303  | 1019 | 1509  | 1585 |
| Grp Volume(v), veh/h          | 240   | 0    | 0    | 760  | 188   | 28   |
| Grp Sat Flow(s),veh/h/ln      | 1497  | 1332 | 0    | 1321 | 1509  | 1585 |
| Q Serve(g_s), s               | 22.1  | 0.0  | 0.0  | 77.3 | 17.2  | 0.6  |
| Cycle Q Clear(g_c), s         | 22.1  | 0.0  | 0.0  | 77.3 | 17.2  | 0.6  |
| Prop In Lane                  | 1.00  | 1.00 |      | 0.77 | 1.00  |      |
| Lane Grp Cap(c), veh/h        | 259   |      | 0    | 782  | 209   | 1209 |
| V/C Ratio(X)                  | 0.93  |      | 0.00 | 0.97 | 0.90  | 0.02 |
| Avail Cap(c_a), veh/h         | 273   |      | 0    | 782  | 275   | 1209 |
| HCM Platoon Ratio             | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Upstream Filter(I)            | 1.00  | 0.00 | 0.00 | 0.74 | 1.00  | 1.00 |
| Uniform Delay (d), s/veh      | 57.0  | 0.0  | 0.0  | 27.4 | 59.3  | 4.0  |
| Incr Delay (d2), s/veh        | 34.8  | 0.0  | 0.0  | 21.6 | 24.8  | 0.0  |
| Initial Q Delay(d3),s/veh     | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  |
| %ile BackOfQ(95%),veh/lt      | 6.4   | 0.0  | 0.0  | 35.9 | 12.7  | 0.4  |
| Unsig. Movement Delay, s/veh  |       |      |      |      |       |      |
| LnGrp Delay(d),s/veh          | 91.8  | 0.0  | 0.0  | 49.0 | 84.2  | 4.0  |
| LnGrp LOS                     | F     |      | A    | D    | F     | A    |
| Approach Vol, veh/h           | 240   |      | 760  |      | 216   |      |
| Approach Delay, s/veh         | 91.8  |      | 49.0 |      | 73.8  |      |
| Approach LOS                  | F     |      | D    |      | E     |      |
| Timer - Assigned Phs          | 1     | 2    |      |      | 6     | 8    |
| Phs Duration (G+Y+Rc), s      | 33.9  | 87.4 |      |      | 111.3 | 28.7 |
| Change Period (Y+Rc), s       | 4.5   | 4.5  |      |      | 4.5   | 4.5  |
| Max Green Setting (Gmax), s   | 25.5  | 75.5 |      |      | 105.5 | 25.5 |
| Max Q Clear Time (g_c+119), s | 119.2 | 79.3 |      |      | 2.6   | 24.1 |
| Green Ext Time (p_c), s       | 0.3   | 0.0  |      |      | 0.2   | 0.1  |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 61.9 |
| HCM 6th LOS        | E    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 35: N Callow Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      | ↗    | ↕    |      |      | ↖    | ↗    |      | ↕    |      |
| Traffic Volume (veh/h)       | 4    | 21   | 9    | 1023 | 4    | 47   | 2    | 220  | 709  | 24   | 251  | 5    |
| Future Volume (veh/h)        | 4    | 21   | 9    | 1023 | 4    | 47   | 2    | 220  | 709  | 24   | 251  | 5    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 0.99 |      | 0.95 | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 4    | 21   | 9    | 1092 | 0    | 0    | 2    | 224  | 723  | 24   | 256  | 5    |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 45   | 236  | 101  | 1105 | 580  | 0    | 39   | 386  | 1409 | 69   | 601  | 12   |
| Arrive On Green              | 0.25 | 0.25 | 0.25 | 0.36 | 0.00 | 0.00 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| Sat Flow, veh/h              | 179  | 942  | 404  | 3043 | 1597 | 0    | 3    | 1581 | 2257 | 102  | 2462 | 49   |
| Grp Volume(v), veh/h         | 34   | 0    | 0    | 1092 | 0    | 0    | 226  | 0    | 723  | 140  | 0    | 145  |
| Grp Sat Flow(s),veh/h/ln     | 1525 | 0    | 0    | 1521 | 1597 | 0    | 1584 | 0    | 1129 | 1183 | 0    | 1431 |
| Q Serve(g_s), s              | 1.6  | 0.0  | 0.0  | 33.9 | 0.0  | 0.0  | 0.0  | 0.0  | 17.6 | 0.4  | 0.0  | 8.1  |
| Cycle Q Clear(g_c), s        | 1.6  | 0.0  | 0.0  | 33.9 | 0.0  | 0.0  | 11.9 | 0.0  | 17.6 | 12.4 | 0.0  | 8.1  |
| Prop In Lane                 | 0.12 |      | 0.26 | 1.00 |      | 0.00 | 0.01 |      | 1.00 | 0.17 |      | 0.03 |
| Lane Grp Cap(c), veh/h       | 383  | 0    | 0    | 1105 | 580  | 0    | 425  | 0    | 1409 | 333  | 0    | 349  |
| V/C Ratio(X)                 | 0.09 | 0.00 | 0.00 | 0.99 | 0.00 | 0.00 | 0.53 | 0.00 | 0.51 | 0.42 | 0.00 | 0.42 |
| Avail Cap(c_a), veh/h        | 383  | 0    | 0    | 1105 | 580  | 0    | 480  | 0    | 1488 | 376  | 0    | 399  |
| 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 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.85 | 0.00 | 0.85 |
| Uniform Delay (d), s/veh     | 27.3 | 0.0  | 0.0  | 30.0 | 0.0  | 0.0  | 31.7 | 0.0  | 10.8 | 29.9 | 0.0  | 30.2 |
| Incr Delay (d2), s/veh       | 0.1  | 0.0  | 0.0  | 22.7 | 0.0  | 0.0  | 1.5  | 0.0  | 0.4  | 1.0  | 0.0  | 1.0  |
| 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(95%),veh/ln     | 1.1  | 0.0  | 0.0  | 21.6 | 0.0  | 0.0  | 8.2  | 0.0  | 13.4 | 5.0  | 0.0  | 5.2  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 27.4 | 0.0  | 0.0  | 52.8 | 0.0  | 0.0  | 33.1 | 0.0  | 11.2 | 30.9 | 0.0  | 31.2 |
| LnGrp LOS                    | C    | A    | A    | D    | A    | A    | C    | A    | B    | C    | A    | C    |
| Approach Vol, veh/h          |      | 34   |      | 1092 |      |      | 949  |      |      | 285  |      |      |
| Approach Delay, s/veh        |      | 27.4 |      | 52.8 |      |      | 16.4 |      |      | 31.0 |      |      |
| Approach LOS                 |      | C    |      | D    |      |      | B    |      |      | C    |      |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    | 8    |      |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 27.7 |      | 28.3 |      | 27.7 | 39.0 |      |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  | 4.5  |      |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 26.5 |      | 20.5 |      | 26.5 | 34.5 |      |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 19.6 |      | 3.6  |      | 14.4 | 35.9 |      |      |      |      |      |
| Green Ext Time (p_c), s      |      | 3.6  |      | 0.1  |      | 1.9  | 0.0  |      |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 35.2 |
| HCM 6th LOS        | D    |

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 36: N Montgomery Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔    |      |      | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Volume (veh/h)       | 24   | 724  | 6    | 3    | 1012 | 11   | 6    | 11   | 2    | 12   | 6    | 52   |
| Future Volume (veh/h)        | 24   | 724  | 6    | 3    | 1012 | 11   | 6    | 11   | 2    | 12   | 6    | 52   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 0.99 |      | 0.98 | 0.98 |      | 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       | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 | 1610 | 1610 | 1610 | 1610 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 26   | 778  | 6    | 3    | 1088 | 12   | 6    | 12   | 2    | 13   | 6    | 56   |
| 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, %         | 2    | 2    | 2    | 1    | 1    | 1    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 88   | 2293 | 17   | 41   | 2440 | 27   | 75   | 101  | 14   | 59   | 19   | 92   |
| Arrive On Green              | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| Sat Flow, veh/h              | 56   | 2828 | 22   | 1    | 3009 | 33   | 253  | 1135 | 154  | 141  | 208  | 1029 |
| Grp Volume(v), veh/h         | 410  | 0    | 400  | 578  | 0    | 525  | 20   | 0    | 0    | 75   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1467 | 0    | 1438 | 1596 | 0    | 1448 | 1542 | 0    | 0    | 1378 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 6.6  | 0.0  | 0.0  | 9.7  | 0.0  | 0.0  | 0.0  | 1.4  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 5.9  | 0.0  | 6.6  | 9.7  | 0.0  | 9.7  | 1.1  | 0.0  | 0.0  | 4.7  | 0.0  | 0.0  |
| Prop In Lane                 | 0.06 |      | 0.01 | 0.01 |      | 0.02 | 0.30 |      | 0.10 | 0.17 |      | 0.75 |
| Lane Grp Cap(c), veh/h       | 1232 | 0    | 1166 | 1334 | 0    | 1174 | 189  | 0    | 0    | 170  | 0    | 0    |
| V/C Ratio(X)                 | 0.33 | 0.00 | 0.34 | 0.43 | 0.00 | 0.45 | 0.11 | 0.00 | 0.00 | 0.44 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1232 | 0    | 1166 | 1334 | 0    | 1174 | 711  | 0    | 0    | 647  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.93 | 0.00 | 0.93 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 2.2  | 0.0  | 2.2  | 2.5  | 0.0  | 2.5  | 37.8 | 0.0  | 0.0  | 39.5 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.7  | 0.0  | 0.7  | 1.0  | 0.0  | 1.2  | 0.3  | 0.0  | 0.0  | 2.2  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 2.5  | 0.0  | 2.5  | 4.1  | 0.0  | 3.8  | 0.8  | 0.0  | 0.0  | 3.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 2.8  | 0.0  | 3.0  | 3.6  | 0.0  | 3.8  | 38.1 | 0.0  | 0.0  | 41.6 | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | D    | A    | A    | D    | A    | A    |
| Approach Vol, veh/h          |      | 810  |      |      | 1103 |      |      | 20   |      |      | 75   |      |
| Approach Delay, s/veh        |      | 2.9  |      |      | 3.6  |      |      | 38.1 |      |      | 41.6 |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 12.5 |      | 77.5 |      | 12.5 |      | 77.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 39.5 |      | 41.5 |      | 39.5 |      | 41.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 3.1  |      | 8.6  |      | 6.7  |      | 11.7 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.1  |      | 12.3 |      | 0.5  |      | 16.5 |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      | 5.1  |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      | A    |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 37: Burwell St (SR 304) & Naval Ave

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      | ↖    | ↗    |      |
| Traffic Volume (veh/h)       | 125  | 568  | 6    | 25   | 730  | 23   | 171  | 365  | 104  | 38   | 54   | 146  |
| Future Volume (veh/h)        | 125  | 568  | 6    | 25   | 730  | 23   | 171  | 365  | 104  | 38   | 54   | 146  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1597 | 1597 | 1597 | 1597 | 1597 | 1597 | 1610 | 1610 | 1610 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 137  | 624  | 7    | 27   | 802  | 25   | 188  | 401  | 114  | 42   | 59   | 160  |
| Peak Hour Factor             | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 1    | 1    | 1    | 1    | 1    | 1    | 0    | 0    | 0    | 1    | 1    | 1    |
| Cap, veh/h                   | 170  | 1330 | 15   | 50   | 1062 | 33   | 228  | 668  | 187  | 67   | 274  | 241  |
| Arrive On Green              | 0.11 | 0.43 | 0.43 | 0.03 | 0.35 | 0.35 | 0.15 | 0.29 | 0.29 | 0.04 | 0.18 | 0.18 |
| Sat Flow, veh/h              | 1521 | 3074 | 34   | 1521 | 3004 | 94   | 1533 | 2339 | 656  | 1521 | 1518 | 1334 |
| Grp Volume(v), veh/h         | 137  | 308  | 323  | 27   | 405  | 422  | 188  | 260  | 255  | 42   | 59   | 160  |
| Grp Sat Flow(s),veh/h/ln     | 1521 | 1518 | 1591 | 1521 | 1518 | 1580 | 1533 | 1530 | 1465 | 1521 | 1518 | 1334 |
| Q Serve(g_s), s              | 7.7  | 12.7 | 12.7 | 1.5  | 20.7 | 20.7 | 10.4 | 12.9 | 13.2 | 2.4  | 2.9  | 9.8  |
| Cycle Q Clear(g_c), s        | 7.7  | 12.7 | 12.7 | 1.5  | 20.7 | 20.7 | 10.4 | 12.9 | 13.2 | 2.4  | 2.9  | 9.8  |
| Prop In Lane                 | 1.00 |      | 0.02 | 1.00 |      | 0.06 | 1.00 |      | 0.45 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 170  | 656  | 688  | 50   | 536  | 559  | 228  | 437  | 419  | 67   | 274  | 241  |
| V/C Ratio(X)                 | 0.80 | 0.47 | 0.47 | 0.54 | 0.76 | 0.76 | 0.82 | 0.60 | 0.61 | 0.63 | 0.21 | 0.66 |
| Avail Cap(c_a), veh/h        | 615  | 1305 | 1368 | 789  | 1305 | 1359 | 795  | 793  | 759  | 442  | 787  | 691  |
| 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     | 38.0 | 17.7 | 17.7 | 41.8 | 25.0 | 25.0 | 36.3 | 27.0 | 27.1 | 41.3 | 30.6 | 33.5 |
| Incr Delay (d2), s/veh       | 10.1 | 0.6  | 0.6  | 10.4 | 2.6  | 2.5  | 8.7  | 1.6  | 1.7  | 11.2 | 0.5  | 3.7  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 6.0  | 7.9  | 8.2  | 1.3  | 12.2 | 12.5 | 7.9  | 8.4  | 8.3  | 2.0  | 2.0  | 6.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 48.2 | 18.4 | 18.3 | 52.2 | 27.7 | 27.6 | 45.0 | 28.6 | 28.8 | 52.5 | 31.1 | 37.2 |
| LnGrp LOS                    | D    | B    | B    | D    | C    | C    | D    | C    | C    | D    | C    | D    |
| Approach Vol, veh/h          |      | 768  |      |      | 854  |      |      | 703  |      |      | 261  |      |
| Approach Delay, s/veh        |      | 23.7 |      |      | 28.4 |      |      | 33.1 |      |      | 38.3 |      |
| Approach LOS                 |      | C    |      |      | C    |      |      | C    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 8.3  | 29.6 | 7.4  | 42.5 | 17.6 | 20.4 | 14.3 | 35.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax)     | 25.5 | 45.5 | 45.5 | 75.5 | 45.5 | 45.5 | 35.5 | 75.5 |      |      |      |      |
| Max Q Clear Time (g_c+1)     | 14.4 | 15.2 | 3.5  | 14.7 | 12.4 | 11.8 | 9.7  | 22.7 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 4.4  | 0.1  | 5.8  | 0.7  | 1.8  | 0.5  | 8.3  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 29.3 |
| HCM 6th LOS        | C    |

HCM 6th Signalized Intersection Summary  
 38: State Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕↕    |      |      | ↕    |       |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 4    | 731   | 16   | 8    | 688  | 4     | 35   | 16   | 15   | 0    | 20   | 6    |
| Future Volume (veh/h)        | 4    | 731   | 16   | 8    | 688  | 4     | 35   | 16   | 15   | 0    | 20   | 6    |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 1.00 | 1.00 |      | 1.00  | 0.55 |      | 0.68 | 1.00 |      | 0.49 |
| 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       | 1585 | 1585  | 1585 | 1572 | 1572 | 1572  | 1585 | 1585 | 1585 | 1560 | 1560 | 1560 |
| Adj Flow Rate, veh/h         | 4    | 778   | 17   | 9    | 732  | 4     | 37   | 17   | 16   | 0    | 21   | 6    |
| 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, %         | 2    | 2     | 2    | 3    | 3    | 3     | 2    | 2    | 2    | 4    | 4    | 4    |
| Cap, veh/h                   | 25   | 2429  | 53   | 28   | 1275 | 7     | 82   | 34   | 24   | 0    | 112  | 32   |
| Arrive On Green              | 0.83 | 0.83  | 0.83 | 0.83 | 0.83 | 0.83  | 0.12 | 0.12 | 0.12 | 0.00 | 0.12 | 0.12 |
| Sat Flow, veh/h              | 4    | 2942  | 64   | 8    | 1545 | 8     | 402  | 278  | 202  | 0    | 927  | 265  |
| Grp Volume(v), veh/h         | 419  | 0     | 380  | 745  | 0    | 0     | 70   | 0    | 0    | 0    | 0    | 27   |
| Grp Sat Flow(s),veh/h/ln     | 1580 | 0     | 1430 | 1561 | 0    | 0     | 882  | 0    | 0    | 0    | 0    | 1192 |
| Q Serve(g_s), s              | 0.0  | 0.0   | 10.5 | 0.0  | 0.0  | 0.0   | 9.5  | 0.0  | 0.0  | 0.0  | 0.0  | 3.4  |
| Cycle Q Clear(g_c), s        | 10.4 | 0.0   | 10.5 | 26.2 | 0.0  | 0.0   | 12.9 | 0.0  | 0.0  | 0.0  | 0.0  | 3.4  |
| Prop In Lane                 | 0.01 |       | 0.04 | 0.01 |      | 0.01  | 0.53 |      | 0.23 | 0.00 |      | 0.22 |
| Lane Grp Cap(c), veh/h       | 1326 | 0     | 1181 | 1310 | 0    | 0     | 139  | 0    | 0    | 0    | 0    | 144  |
| V/C Ratio(X)                 | 0.32 | 0.00  | 0.32 | 0.57 | 0.00 | 0.00  | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 |
| Avail Cap(c_a), veh/h        | 1326 | 0     | 1181 | 1310 | 0    | 0     | 203  | 0    | 0    | 0    | 0    | 226  |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.91 | 0.00  | 0.91 | 1.00 | 0.00 | 0.00  | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 3.4  | 0.0   | 3.4  | 4.8  | 0.0  | 0.0   | 70.0 | 0.0  | 0.0  | 0.0  | 0.0  | 65.7 |
| Incr Delay (d2), s/veh       | 0.6  | 0.0   | 0.7  | 1.8  | 0.0  | 0.0   | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 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(95%),veh/ln     | 5.9  | 0.0   | 5.4  | 13.0 | 0.0  | 0.0   | 5.3  | 0.0  | 0.0  | 0.0  | 0.0  | 1.9  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 4.0  | 0.0   | 4.1  | 6.6  | 0.0  | 0.0   | 71.0 | 0.0  | 0.0  | 0.0  | 0.0  | 65.9 |
| LnGrp LOS                    | A    | A     | A    | A    | A    | A     | E    | A    | A    | A    | A    | E    |
| Approach Vol, veh/h          |      | 799   |      |      | 745  |       |      | 70   |      |      |      | 27   |
| Approach Delay, s/veh        |      | 4.1   |      |      | 6.6  |       |      | 71.0 |      |      |      | 65.9 |
| Approach LOS                 |      | A     |      |      | A    |       |      | E    |      |      |      | E    |
| Timer - Assigned Phs         |      | 2     |      | 4    |      | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 141.5 |      | 24.5 |      | 141.5 |      | 24.5 |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5   |      | 4.5  |      | 4.5   |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 125.5 |      | 31.5 |      | 125.5 |      | 31.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 12.5  |      | 5.4  |      | 28.2  |      | 14.9 |      |      |      |      |
| Green Ext Time (p_c), s      |      | 10.0  |      | 0.1  |      | 11.3  |      | 0.3  |      |      |      |      |
| <b>Intersection Summary</b>  |      |       |      |      |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |       |      | 9.1  |      |       |      |      |      |      |      |      |
| HCM 6th LOS                  |      |       |      | A    |      |       |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 40: Burwell St (SR 304) & Park Ave

04/29/2024



| Movement                     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕↕   | ↕↕   |      | ↕    | ↕    |
| Traffic Volume (veh/h)       | 58   | 409  | 395  | 48   | 15   | 128  |
| Future Volume (veh/h)        | 58   | 409  | 395  | 48   | 15   | 128  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.99 |      |      | 0.98 | 1.00 | 0.99 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1597 | 1597 | 1610 | 1610 |
| Adj Flow Rate, veh/h         | 78   | 553  | 534  | 65   | 20   | 173  |
| Peak Hour Factor             | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 |
| Percent Heavy Veh, %         | 3    | 3    | 1    | 1    | 0    | 0    |
| Cap, veh/h                   | 268  | 1082 | 1147 | 139  | 28   | 240  |
| Arrive On Green              | 0.42 | 0.42 | 0.42 | 0.42 | 0.20 | 0.20 |
| Sat Flow, veh/h              | 187  | 2639 | 2799 | 330  | 141  | 1224 |
| Grp Volume(v), veh/h         | 333  | 298  | 297  | 302  | 194  | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1395 | 1359 | 1518 | 1532 | 1372 | 0    |
| Q Serve(g_s), s              | 0.0  | 3.8  | 3.3  | 3.3  | 3.1  | 0.0  |
| Cycle Q Clear(g_c), s        | 3.7  | 3.8  | 3.3  | 3.3  | 3.1  | 0.0  |
| Prop In Lane                 | 0.23 |      |      | 0.22 | 0.10 | 0.89 |
| Lane Grp Cap(c), veh/h       | 777  | 573  | 640  | 646  | 269  | 0    |
| V/C Ratio(X)                 | 0.43 | 0.52 | 0.46 | 0.47 | 0.72 | 0.00 |
| Avail Cap(c_a), veh/h        | 2721 | 2626 | 2931 | 2959 | 1486 | 0    |
| HCM Platoon Ratio            | 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 | 0.00 |
| Uniform Delay (d), s/veh     | 5.0  | 5.0  | 4.9  | 4.9  | 8.9  | 0.0  |
| Incr Delay (d2), s/veh       | 0.3  | 0.5  | 0.4  | 0.4  | 2.7  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln     | 1.0  | 0.9  | 0.9  | 0.9  | 1.4  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 5.3  | 5.6  | 5.3  | 5.3  | 11.6 | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | B    | A    |
| Approach Vol, veh/h          |      | 631  | 599  |      | 194  |      |
| Approach Delay, s/veh        |      | 5.4  | 5.3  |      | 11.6 |      |
| Approach LOS                 |      | A    | A    |      | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |
| Phs Duration (G+Y+Rc), s     |      | 14.4 |      | 9.1  |      | 14.4 |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |
| Max Green Setting (Gmax), s  |      | 45.5 |      | 25.5 |      | 45.5 |
| Max Q Clear Time (g_c+I1), s |      | 5.8  |      | 5.1  |      | 5.3  |
| Green Ext Time (p_c), s      |      | 4.1  |      | 0.5  |      | 3.5  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 6.2  |      |      |      |
| HCM 6th LOS                  |      |      | A    |      |      |      |

### Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 42: Pacific Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|-----|-----|-----|------|------|------|
| Lane Configurations          |      | ↕    | ↗    |      | ↕    |      |     |     |     |      | ↕    |      |
| Traffic Volume (veh/h)       | 22   | 185  | 185  | 66   | 241  | 33   | 0   | 0   | 0   | 13   | 80   | 39   |
| Future Volume (veh/h)        | 22   | 185  | 185  | 66   | 241  | 33   | 0   | 0   | 0   | 13   | 80   | 39   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0.99 |      | 0.85 | 0.93 |      | 0.96 |     |     |     | 1.00 |      | 0.70 |
| Parking Bus, Adj             | 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   |      |
| Adj Sat Flow, veh/h/ln       | 1572 | 1572 | 1572 | 1572 | 1572 | 1572 |     |     |     | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h         | 25   | 208  | 208  | 74   | 271  | 37   |     |     |     | 15   | 90   | 44   |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |     |     |     | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %         | 3    | 3    | 3    | 3    | 3    | 3    |     |     |     | 1    | 1    | 1    |
| Cap, veh/h                   | 132  | 652  | 500  | 185  | 491  | 61   |     |     |     | 47   | 281  | 137  |
| Arrive On Green              | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |     |     |     | 0.35 | 0.35 | 0.35 |
| Sat Flow, veh/h              | 65   | 1475 | 1132 | 167  | 1110 | 137  |     |     |     | 133  | 800  | 391  |
| Grp Volume(v), veh/h         | 233  | 0    | 208  | 382  | 0    | 0    |     |     |     | 149  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1540 | 0    | 1132 | 1415 | 0    | 0    |     |     |     | 1325 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 4.8  | 1.2  | 0.0  | 0.0  |     |     |     | 3.2  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 3.7  | 0.0  | 4.8  | 7.3  | 0.0  | 0.0  |     |     |     | 3.2  | 0.0  | 0.0  |
| Prop In Lane                 | 0.11 |      | 1.00 | 0.19 |      | 0.10 |     |     |     | 0.10 |      | 0.30 |
| Lane Grp Cap(c), veh/h       | 784  | 0    | 500  | 736  | 0    | 0    |     |     |     | 464  | 0    | 0    |
| V/C Ratio(X)                 | 0.30 | 0.00 | 0.42 | 0.52 | 0.00 | 0.00 |     |     |     | 0.32 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1907 | 0    | 1352 | 1749 | 0    | 0    |     |     |     | 1066 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |     |     |     | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 7.0  | 0.0  | 7.4  | 8.0  | 0.0  | 0.0  |     |     |     | 9.2  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.2  | 0.0  | 0.6  | 0.6  | 0.0  | 0.0  |     |     |     | 0.4  | 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  |
| %ile BackOfQ(95%),veh/ln     | 1.7  | 0.0  | 1.7  | 3.2  | 0.0  | 0.0  |     |     |     | 1.4  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |     |     |     |      |      |      |
| LnGrp Delay(d),s/veh         | 7.3  | 0.0  | 7.9  | 8.6  | 0.0  | 0.0  |     |     |     | 9.5  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    |     |     |     | A    | A    | A    |
| Approach Vol, veh/h          |      | 441  |      |      | 382  |      |     |     |     |      | 149  |      |
| Approach Delay, s/veh        |      | 7.6  |      |      | 8.6  |      |     |     |     |      | 9.5  |      |
| Approach LOS                 |      | A    |      |      | A    |      |     |     |     |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |     |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 21.0 |      | 17.5 |      | 21.0 |     |     |     |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  |      | 4.0  |      | 4.0  |     |     |     |      |      |      |
| Max Green Setting (Gmax), s  |      | 46.0 |      | 31.0 |      | 46.0 |     |     |     |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 6.8  |      | 5.2  |      | 9.3  |     |     |     |      |      |      |
| Green Ext Time (p_c), s      |      | 2.6  |      | 1.0  |      | 3.1  |     |     |     |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |     |     |     |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |     |     |     |      | 8.3  |      |
| HCM 6th LOS                  |      |      |      |      |      |      |     |     |     |      | A    |      |

HCM 6th Signalized Intersection Summary  
 43: Washington Ave & Burwell St (SR 304)

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      |      | ↔    |      |      | ↕↔   |      |      | ↕↔   |      |
| Traffic Volume (veh/h)       | 212  | 6    | 0    | 0    | 3    | 3    | 131  | 250  | 0    | 6    | 0    | 110  |
| Future Volume (veh/h)        | 212  | 6    | 0    | 0    | 3    | 3    | 131  | 250  | 0    | 6    | 0    | 110  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 0.95 |      | 1.00 | 0.96 |      | 0.93 |
| 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       | 1610 | 1610 | 0    | 0    | 1610 | 1610 | 1535 | 1535 | 1535 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 259  | 7    | 0    | 0    | 4    | 4    | 160  | 305  | 0    | 7    | 0    | 134  |
| Peak Hour Factor             | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 6    | 6    | 6    | 5    | 5    | 5    |
| Cap, veh/h                   | 362  | 10   | 0    | 0    | 9    | 9    | 445  | 738  | 0    | 106  | 17   | 454  |
| Arrive On Green              | 0.24 | 0.24 | 0.00 | 0.00 | 0.01 | 0.01 | 0.39 | 0.39 | 0.00 | 0.39 | 0.00 | 0.39 |
| Sat Flow, veh/h              | 1495 | 40   | 0    | 0    | 732  | 732  | 746  | 1963 | 0    | 17   | 44   | 1165 |
| Grp Volume(v), veh/h         | 266  | 0    | 0    | 0    | 0    | 8    | 255  | 210  | 0    | 141  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1535 | 0    | 0    | 0    | 0    | 1463 | 1312 | 1327 | 0    | 1226 | 0    | 0    |
| Q Serve(g_s), s              | 6.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 2.2  | 4.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 6.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 5.2  | 4.4  | 0.0  | 3.0  | 0.0  | 0.0  |
| Prop In Lane                 | 0.97 |      | 0.00 | 0.00 |      | 0.50 | 0.63 |      | 0.00 | 0.05 |      | 0.95 |
| Lane Grp Cap(c), veh/h       | 372  | 0    | 0    | 0    | 0    | 19   | 665  | 517  | 0    | 577  | 0    | 0    |
| V/C Ratio(X)                 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.38 | 0.41 | 0.00 | 0.24 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1031 | 0    | 0    | 0    | 0    | 597  | 2027 | 1938 | 0    | 1871 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 13.2 | 0.0  | 0.0  | 0.0  | 0.0  | 18.6 | 8.6  | 8.4  | 0.0  | 8.0  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 5.6  | 0.4  | 0.6  | 0.0  | 0.3  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 3.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 2.2  | 1.8  | 0.0  | 1.2  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 15.1 | 0.0  | 0.0  | 0.0  | 0.0  | 24.2 | 9.0  | 9.0  | 0.0  | 8.3  | 0.0  | 0.0  |
| LnGrp LOS                    | B    | A    | A    | A    | A    | C    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 266  |      |      | 8    |      |      | 465  |      |      |      | 141  |
| Approach Delay, s/veh        |      | 15.1 |      |      | 24.2 |      |      | 9.0  |      |      |      | 8.3  |
| Approach LOS                 |      | B    |      |      | C    |      |      | A    |      |      |      | A    |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 19.3 |      | 13.7 |      | 19.3 |      | 5.0  |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.5  |      | 4.5  |      | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 55.5 |      | 25.5 |      | 55.5 |      | 15.5 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 7.2  |      | 8.0  |      | 5.0  |      | 2.2  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 4.3  |      | 1.2  |      | 1.4  |      | 0.0  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      |      | 10.9 |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      |      | B    |

# HCM 6th Signalized Intersection Summary

## 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

04/29/2024



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            | ↘    | ↑    | ↗    | ↘↗   | ↑    | ↗    | ↘    | ↑↑   |      | ↘    | ↑↗   |      |
| Traffic Volume (veh/h)         | 40   | 35   | 11   | 545  | 155  | 113  | 17   | 726  | 0    | 40   | 1078 | 6    |
| Future Volume (veh/h)          | 40   | 35   | 11   | 545  | 155  | 113  | 17   | 726  | 0    | 40   | 1078 | 6    |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 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         | 1547 | 1547 | 1547 | 1597 | 1597 | 1597 | 1597 | 1597 | 0    | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h           | 43   | 37   | 12   | 580  | 165  | 0    | 18   | 772  | 0    | 43   | 1147 | 6    |
| 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, %           | 5    | 5    | 5    | 1    | 1    | 1    | 1    | 1    | 0    | 2    | 2    | 2    |
| Cap, veh/h                     | 70   | 124  | 105  | 635  | 396  |      | 38   | 1322 | 0    | 72   | 1406 | 7    |
| Arrive On Green                | 0.05 | 0.08 | 0.08 | 0.22 | 0.25 | 0.00 | 0.03 | 0.44 | 0.00 | 0.05 | 0.46 | 0.46 |
| Sat Flow, veh/h                | 1474 | 1547 | 1311 | 2951 | 1597 | 1354 | 1521 | 3115 | 0    | 1509 | 3071 | 16   |
| Grp Volume(v), veh/h           | 43   | 37   | 12   | 580  | 165  | 0    | 18   | 772  | 0    | 43   | 562  | 591  |
| Grp Sat Flow(s),veh/h/ln       | 1474 | 1547 | 1311 | 1476 | 1597 | 1354 | 1521 | 1518 | 0    | 1509 | 1506 | 1582 |
| Q Serve(g_s), s                | 2.1  | 1.7  | 0.6  | 14.3 | 6.4  | 0.0  | 0.9  | 14.3 | 0.0  | 2.1  | 24.0 | 24.0 |
| Cycle Q Clear(g_c), s          | 2.1  | 1.7  | 0.6  | 14.3 | 6.4  | 0.0  | 0.9  | 14.3 | 0.0  | 2.1  | 24.0 | 24.0 |
| Prop In Lane                   | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      | 0.01 |
| Lane Grp Cap(c), veh/h         | 70   | 124  | 105  | 635  | 396  |      | 38   | 1322 | 0    | 72   | 689  | 724  |
| V/C Ratio(X)                   | 0.61 | 0.30 | 0.11 | 0.91 | 0.42 |      | 0.47 | 0.58 | 0.00 | 0.60 | 0.82 | 0.82 |
| Avail Cap(c_a), veh/h          | 555  | 582  | 493  | 635  | 396  |      | 327  | 3488 | 0    | 325  | 1730 | 1818 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh       | 34.8 | 32.2 | 31.8 | 28.5 | 23.5 | 0.0  | 35.8 | 15.9 | 0.0  | 34.7 | 17.5 | 17.5 |
| Incr Delay (d2), s/veh         | 8.5  | 1.3  | 0.5  | 17.8 | 0.7  | 0.0  | 3.3  | 0.3  | 0.0  | 3.0  | 1.8  | 1.7  |
| Initial Q Delay(d3),s/veh      | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln       | 1.7  | 1.2  | 0.4  | 10.6 | 4.4  | 0.0  | 0.6  | 8.1  | 0.0  | 1.4  | 12.4 | 12.9 |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh           | 43.2 | 33.6 | 32.2 | 46.3 | 24.2 | 0.0  | 39.1 | 16.2 | 0.0  | 37.7 | 19.3 | 19.2 |
| LnGrp LOS                      | D    | C    | C    | D    | C    |      | D    | B    | A    | D    | B    | B    |
| Approach Vol, veh/h            |      | 92   |      |      | 745  |      |      | 790  |      |      | 1196 |      |
| Approach Delay, s/veh          |      | 37.9 |      |      | 41.4 |      |      | 16.7 |      |      | 19.9 |      |
| Approach LOS                   |      | D    |      |      | D    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 5.9  | 38.6 | 20.0 | 10.0 | 7.5  | 36.9 | 7.5  | 22.4 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.0  | 4.5  | 4.0  | 4.0  | 4.0  | 4.5  | 4.0  | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s    | 16.0 | 85.5 | 16.0 | 28.0 | 16.0 | 85.5 | 28.0 | 16.0 |      |      |      |      |
| Max Q Clear Time (g_c+12.5), s | 12.5 | 26.0 | 16.3 | 3.7  | 4.1  | 16.3 | 4.1  | 8.4  |      |      |      |      |
| Green Ext Time (p_c), s        | 0.0  | 8.0  | 0.0  | 0.2  | 0.0  | 5.3  | 0.1  | 0.5  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 25.3 |
| HCM 6th LOS        | C    |

### Notes

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

HCM 6th Signalized Intersection Summary  
 45: Charleston Blvd (SR 304) & Charleston Beach Rd

04/29/2024



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      | ↕    |      | ↗    | ↕    |      | ↖    | ↑↑   | ↖    | ↖    | ↑↑↑  |      |
| Traffic Volume (veh/h)        | 29   | 2    | 36   | 406  | 16   | 46   | 10   | 701  | 5    | 7    | 1540 | 35   |
| Future Volume (veh/h)         | 29   | 2    | 36   | 406  | 16   | 46   | 10   | 701  | 5    | 7    | 1540 | 35   |
| 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 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1585 | 1585 | 1585 | 1610 | 1610 | 1610 | 1585 | 1585 | 1585 | 1597 | 1597 | 1597 |
| Adj Flow Rate, veh/h          | 30   | 2    | 37   | 474  | 0    | 0    | 10   | 723  | 5    | 7    | 1588 | 36   |
| 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, %          | 2    | 2    | 2    | 0    | 0    | 0    | 2    | 2    | 2    | 1    | 1    | 1    |
| Cap, veh/h                    | 36   | 2    | 45   | 581  | 305  | 0    | 22   | 1704 | 760  | 16   | 2273 | 52   |
| Arrive On Green               | 0.06 | 0.06 | 0.06 | 0.19 | 0.00 | 0.00 | 0.01 | 0.57 | 0.57 | 0.01 | 0.56 | 0.56 |
| Sat Flow, veh/h               | 600  | 40   | 740  | 3067 | 1610 | 0    | 1509 | 3011 | 1343 | 1521 | 4045 | 92   |
| Grp Volume(v), veh/h          | 69   | 0    | 0    | 474  | 0    | 0    | 10   | 723  | 5    | 7    | 1003 | 621  |
| Grp Sat Flow(s),veh/h/ln      | 1381 | 0    | 0    | 1533 | 1610 | 0    | 1509 | 1506 | 1343 | 1521 | 1278 | 1581 |
| Q Serve(g_s), s               | 5.1  | 0.0  | 0.0  | 15.4 | 0.0  | 0.0  | 0.7  | 14.2 | 0.2  | 0.5  | 29.4 | 29.4 |
| Cycle Q Clear(g_c), s         | 5.1  | 0.0  | 0.0  | 15.4 | 0.0  | 0.0  | 0.7  | 14.2 | 0.2  | 0.5  | 29.4 | 29.4 |
| Prop In Lane                  | 0.43 |      | 0.54 | 1.00 |      | 0.00 | 1.00 |      | 1.00 | 1.00 |      | 0.06 |
| Lane Grp Cap(c), veh/h        | 84   | 0    | 0    | 581  | 305  | 0    | 22   | 1704 | 760  | 16   | 1436 | 888  |
| V/C Ratio(X)                  | 0.82 | 0.00 | 0.00 | 0.82 | 0.00 | 0.00 | 0.46 | 0.42 | 0.01 | 0.44 | 0.70 | 0.70 |
| Avail Cap(c_a), veh/h         | 213  | 0    | 0    | 1936 | 1017 | 0    | 226  | 2467 | 1100 | 227  | 2094 | 1295 |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh      | 48.2 | 0.0  | 0.0  | 40.3 | 0.0  | 0.0  | 50.7 | 12.9 | 9.8  | 51.0 | 16.4 | 16.4 |
| Incr Delay (d2), s/veh        | 17.7 | 0.0  | 0.0  | 2.1  | 0.0  | 0.0  | 5.5  | 0.2  | 0.0  | 6.8  | 0.9  | 1.4  |
| 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(95%),veh/ln      | 3.9  | 0.0  | 0.0  | 10.0 | 0.0  | 0.0  | 0.5  | 7.7  | 0.1  | 0.4  | 12.9 | 15.6 |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 65.9 | 0.0  | 0.0  | 42.5 | 0.0  | 0.0  | 56.2 | 13.1 | 9.8  | 57.8 | 17.3 | 17.8 |
| LnGrp LOS                     | E    | A    | A    | D    | A    | A    | E    | B    | A    | E    | B    | B    |
| Approach Vol, veh/h           |      | 69   |      | 474  |      |      | 738  |      |      | 1631 |      |      |
| Approach Delay, s/veh         |      | 65.9 |      | 42.5 |      |      | 13.7 |      |      | 17.7 |      |      |
| Approach LOS                  |      | E    |      | D    |      |      | B    |      |      | B    |      |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 6.0  | 63.3 |      | 24.2 | 5.6  | 63.7 |      | 10.3 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.5  | 5.0  |      | 4.5  | 4.5  | 5.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 15.5 | 85.0 |      | 65.5 | 15.5 | 85.0 |      | 16.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 12.7 | 31.4 |      | 17.4 | 2.5  | 16.2 |      | 7.1  |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 26.9 |      | 1.4  | 0.0  | 8.0  |      | 0.2  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 21.8 |
| HCM 6th LOS        | C    |

Notes

User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary

## 46: Union Ave/Auto Center Blvd & Werner Rd

04/29/2024



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖    | ↗     |      | ↖    | ↗    |      | ↖    | ↑    | ↗    | ↖    | ↗    |      |
| Traffic Volume (veh/h)       | 5    | 148   | 44   | 469  | 102  | 82   | 6    | 45   | 121  | 133  | 364  | 13   |
| Future Volume (veh/h)        | 5    | 148   | 44   | 469  | 102  | 82   | 6    | 45   | 121  | 133  | 364  | 13   |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No    |      | No   |      | No   |      | No   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1547 | 1547  | 1547 | 1572 | 1572 | 1572 | 1585 | 1585 | 1585 | 1572 | 1572 | 1572 |
| Adj Flow Rate, veh/h         | 5    | 156   | 46   | 494  | 107  | 86   | 6    | 47   | 0    | 140  | 383  | 14   |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 5    | 5     | 5    | 3    | 3    | 3    | 2    | 2    | 2    | 3    | 3    | 3    |
| Cap, veh/h                   | 12   | 202   | 60   | 530  | 406  | 327  | 153  | 480  |      | 468  | 456  | 17   |
| Arrive On Green              | 0.01 | 0.18  | 0.18 | 0.35 | 0.50 | 0.50 | 0.30 | 0.30 | 0.00 | 0.30 | 0.30 | 0.30 |
| Sat Flow, veh/h              | 1474 | 1147  | 338  | 1497 | 807  | 649  | 986  | 1585 | 1343 | 1344 | 1507 | 55   |
| Grp Volume(v), veh/h         | 5    | 0     | 202  | 494  | 0    | 193  | 6    | 47   | 0    | 140  | 0    | 397  |
| Grp Sat Flow(s),veh/h/ln     | 1474 | 0     | 1485 | 1497 | 0    | 1456 | 986  | 1585 | 1343 | 1344 | 0    | 1562 |
| Q Serve(g_s), s              | 0.3  | 0.0   | 10.5 | 25.7 | 0.0  | 6.1  | 0.5  | 1.7  | 0.0  | 6.8  | 0.0  | 19.2 |
| Cycle Q Clear(g_c), s        | 0.3  | 0.0   | 10.5 | 25.7 | 0.0  | 6.1  | 19.7 | 1.7  | 0.0  | 8.5  | 0.0  | 19.2 |
| Prop In Lane                 | 1.00 |       | 0.23 | 1.00 |      | 0.45 | 1.00 |      | 1.00 | 1.00 |      | 0.04 |
| Lane Grp Cap(c), veh/h       | 12   | 0     | 262  | 530  | 0    | 733  | 153  | 480  |      | 468  | 0    | 473  |
| V/C Ratio(X)                 | 0.43 | 0.00  | 0.77 | 0.93 | 0.00 | 0.26 | 0.04 | 0.10 |      | 0.30 | 0.00 | 0.84 |
| Avail Cap(c_a), veh/h        | 447  | 0     | 818  | 574  | 0    | 733  | 172  | 510  |      | 576  | 0    | 599  |
| 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 | 0.00  | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 39.9 | 0.0   | 31.7 | 25.2 | 0.0  | 11.5 | 35.5 | 20.2 | 0.0  | 23.3 | 0.0  | 26.3 |
| Incr Delay (d2), s/veh       | 32.1 | 0.0   | 6.7  | 22.0 | 0.0  | 0.3  | 0.1  | 0.1  | 0.0  | 0.6  | 0.0  | 10.0 |
| 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(95%),veh/lr     | 0.4  | 0.0   | 7.3  | 17.3 | 0.0  | 3.3  | 0.2  | 1.2  | 0.0  | 3.9  | 0.0  | 12.9 |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 72.0 | 0.0   | 38.4 | 47.2 | 0.0  | 11.7 | 35.7 | 20.4 | 0.0  | 23.9 | 0.0  | 36.4 |
| LnGrp LOS                    | E    | A     | D    | D    | A    | B    | D    | C    |      | C    | A    | D    |
| Approach Vol, veh/h          |      | 207   |      | 687  |      |      |      | 53   |      |      | 537  |      |
| Approach Delay, s/veh        |      | 39.2  |      | 37.3 |      |      |      | 22.1 |      |      | 33.1 |      |
| Approach LOS                 |      | D     |      | D    |      |      |      | C    |      |      | C    |      |
| Timer - Assigned Phs         | 1    | 2     |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 6.1  | 46.2  |      | 28.5 | 32.6 | 19.8 |      | 28.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 5.5  | * 5.5 |      | 4.0  | 4.0  | 5.5  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 24.5 | * 36  |      | 26.0 | 31.0 | 44.5 |      | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 12.3 | 8.1   |      | 21.7 | 27.7 | 12.5 |      | 21.2 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 1.6   |      | 0.1  | 0.9  | 1.7  |      | 3.3  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 35.5 |
| HCM 6th LOS        | D    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 47: Oyster Bay Ave/Auto Center Way & Werner Rd/Loxie Eagans Blvd

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 19   | 439  | 27   | 146  | 664  | 114  | 17   | 15   | 89   | 211  | 53   | 121  |
| Future Volume (veh/h)        | 19   | 439  | 27   | 146  | 664  | 114  | 17   | 15   | 89   | 211  | 53   | 121  |
| 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 1585 | 1560 | 1560 | 1560 | 1547 | 1547 | 1547 | 1547 | 1547 | 1547 |
| Adj Flow Rate, veh/h         | 20   | 457  | 28   | 152  | 692  | 0    | 18   | 16   | 0    | 220  | 55   | 0    |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 4    | 4    | 4    | 5    | 5    | 5    | 5    | 5    | 5    |
| Cap, veh/h                   | 45   | 855  | 52   | 200  | 1191 |      | 459  | 381  |      | 497  | 381  |      |
| Arrive On Green              | 0.03 | 0.30 | 0.30 | 0.13 | 0.40 | 0.00 | 0.25 | 0.25 | 0.00 | 0.25 | 0.25 | 0.00 |
| Sat Flow, veh/h              | 1509 | 2877 | 176  | 1485 | 2964 | 1322 | 1317 | 1547 | 0    | 1364 | 1547 | 0    |
| Grp Volume(v), veh/h         | 20   | 238  | 247  | 152  | 692  | 0    | 18   | 16   | 0    | 220  | 55   | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1509 | 1506 | 1547 | 1485 | 1482 | 1322 | 1317 | 1547 | 0    | 1364 | 1547 | 0    |
| Q Serve(g_s), s              | 0.5  | 5.5  | 5.6  | 4.1  | 7.6  | 0.0  | 0.5  | 0.3  | 0.0  | 6.1  | 1.2  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.5  | 5.5  | 5.6  | 4.1  | 7.6  | 0.0  | 1.6  | 0.3  | 0.0  | 6.5  | 1.2  | 0.0  |
| Prop In Lane                 | 1.00 |      | 0.11 | 1.00 |      | 1.00 | 1.00 |      | 0.00 | 1.00 |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 45   | 447  | 460  | 200  | 1191 |      | 459  | 381  |      | 497  | 381  |      |
| V/C Ratio(X)                 | 0.45 | 0.53 | 0.54 | 0.76 | 0.58 |      | 0.04 | 0.04 |      | 0.44 | 0.14 |      |
| Avail Cap(c_a), veh/h        | 379  | 1456 | 1496 | 1082 | 4282 |      | 1094 | 1127 |      | 1155 | 1127 |      |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh     | 20.0 | 12.3 | 12.3 | 17.5 | 9.8  | 0.0  | 13.0 | 12.0 | 0.0  | 14.5 | 12.3 | 0.0  |
| Incr Delay (d2), s/veh       | 9.6  | 1.4  | 1.4  | 8.2  | 0.5  | 0.0  | 0.1  | 0.1  | 0.0  | 1.3  | 0.4  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr     | 0.5  | 2.9  | 3.0  | 2.9  | 3.3  | 0.0  | 0.2  | 0.2  | 0.0  | 3.3  | 0.7  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 29.5 | 13.7 | 13.7 | 25.7 | 10.3 | 0.0  | 13.0 | 12.1 | 0.0  | 15.8 | 12.7 | 0.0  |
| LnGrp LOS                    | C    | B    | B    | C    | B    |      | B    | B    |      | B    | B    |      |
| Approach Vol, veh/h          |      | 505  |      |      | 844  |      |      | 34   |      |      | 275  |      |
| Approach Delay, s/veh        |      | 14.3 |      |      | 13.1 |      |      | 12.6 |      |      | 15.2 |      |
| Approach LOS                 |      | B    |      |      | B    |      |      | B    |      |      | B    |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.7  | 21.3 |      | 14.8 | 10.1 | 16.9 |      | 14.8 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  |      | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 60.5 | 60.5 |      | 30.5 | 30.5 | 40.5 |      | 30.5 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 9.6  | 9.6  |      | 3.6  | 6.1  | 7.6  |      | 8.5  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 6.6  |      | 0.2  | 0.7  | 4.4  |      | 2.1  |      |      |      |      |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 13.8 |
| HCM 6th LOS        | B    |

### Notes

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

# HCM 6th Signalized Intersection Summary

## 48: National Ave & Loxie Eagans Blvd

04/29/2024



| Movement                      | EBL   | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT   | SBR   |
|-------------------------------|-------|------|------|------|------|------|------|------|------|------|-------|-------|
| Lane Configurations           |       |      |      |      |      |      |      |      |      |      |       |       |
| Traffic Volume (veh/h)        | 227   | 165  | 122  | 27   | 484  | 10   | 167  | 85   | 27   | 6    | 88    | 329   |
| Future Volume (veh/h)         | 227   | 165  | 122  | 27   | 484  | 10   | 167  | 85   | 27   | 6    | 88    | 329   |
| Initial Q (Qb), veh           | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |
| Ped-Bike Adj(A_pbT)           | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 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        | 1572  | 1572 | 1572 | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1560 | 1560  | 1560  |
| Adj Flow Rate, veh/h          | 247   | 179  | 133  | 29   | 526  | 11   | 182  | 92   | 29   | 7    | 96    | 358   |
| Peak Hour Factor              | 0.92  | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92  | 0.92  |
| Percent Heavy Veh, %          | 3     | 3    | 3    | 1    | 1    | 1    | 2    | 2    | 2    | 4    | 4     | 4     |
| Cap, veh/h                    | 227   | 569  | 399  | 54   | 679  | 14   | 203  | 103  | 259  | 22   | 299   | 272   |
| Arrive On Green               | 0.15  | 0.34 | 0.34 | 0.04 | 0.22 | 0.22 | 0.20 | 0.20 | 0.20 | 0.21 | 0.21  | 0.21  |
| Sat Flow, veh/h               | 1497  | 1675 | 1174 | 1521 | 3040 | 64   | 1019 | 515  | 1296 | 106  | 1449  | 1318  |
| Grp Volume(v), veh/h          | 247   | 158  | 154  | 29   | 262  | 275  | 274  | 0    | 29   | 103  | 0     | 358   |
| Grp Sat Flow(s),veh/h/ln      | 1497  | 1494 | 1355 | 1521 | 1518 | 1586 | 1534 | 0    | 1296 | 1554 | 0     | 1318  |
| Q Serve(g_s), s               | 12.5  | 6.4  | 6.9  | 1.5  | 13.4 | 13.4 | 14.3 | 0.0  | 1.5  | 4.6  | 0.0   | 17.0  |
| Cycle Q Clear(g_c), s         | 12.5  | 6.4  | 6.9  | 1.5  | 13.4 | 13.4 | 14.3 | 0.0  | 1.5  | 4.6  | 0.0   | 17.0  |
| Prop In Lane                  | 1.00  |      | 0.87 | 1.00 |      | 0.04 | 0.66 |      | 1.00 | 0.07 |       | 1.00  |
| Lane Grp Cap(c), veh/h        | 227   | 508  | 461  | 54   | 339  | 354  | 306  | 0    | 259  | 321  | 0     | 272   |
| V/C Ratio(X)                  | 1.09  | 0.31 | 0.33 | 0.54 | 0.77 | 0.78 | 0.89 | 0.00 | 0.11 | 0.32 | 0.00  | 1.32  |
| Avail Cap(c_a), veh/h         | 227   | 762  | 691  | 111  | 654  | 684  | 317  | 0    | 268  | 321  | 0     | 272   |
| 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      | 34.9  | 20.1 | 20.2 | 39.1 | 30.0 | 30.0 | 32.1 | 0.0  | 27.0 | 27.8 | 0.0   | 32.7  |
| Incr Delay (d2), s/veh        | 84.6  | 0.3  | 0.4  | 8.2  | 3.8  | 3.6  | 25.6 | 0.0  | 0.2  | 0.6  | 0.0   | 165.6 |
| Initial Q Delay(d3),s/veh     | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   |
| %ile BackOfQ(95%),veh/lt      | 5.4   | 3.9  | 3.8  | 1.2  | 8.7  | 9.0  | 11.8 | 0.0  | 0.9  | 3.2  | 0.0   | 28.1  |
| Unsig. Movement Delay, s/veh  |       |      |      |      |      |      |      |      |      |      |       |       |
| LnGrp Delay(d),s/veh          | 119.6 | 20.4 | 20.7 | 47.2 | 33.8 | 33.7 | 57.7 | 0.0  | 27.2 | 28.3 | 0.0   | 198.3 |
| LnGrp LOS                     | F     | C    | C    | D    | C    | C    | E    | A    | C    | C    | A     | F     |
| Approach Vol, veh/h           |       | 559  |      |      | 566  |      |      | 303  |      |      | 461   |       |
| Approach Delay, s/veh         |       | 64.3 |      |      | 34.4 |      |      | 54.7 |      |      | 160.3 |       |
| Approach LOS                  |       | E    |      |      | C    |      |      | D    |      |      | F     |       |
| Timer - Assigned Phs          | 1     | 2    |      | 4    | 5    | 6    |      | 8    |      |      |       |       |
| Phs Duration (G+Y+Rc), s      | 7.4   | 32.5 |      | 21.5 | 17.0 | 22.9 |      | 20.9 |      |      |       |       |
| Change Period (Y+Rc), s       | 4.5   | 4.5  |      | 4.5  | 4.5  | 4.5  |      | 4.5  |      |      |       |       |
| Max Green Setting (Gmax), s   | 6.0   | 42.0 |      | 17.0 | 12.5 | 35.5 |      | 17.0 |      |      |       |       |
| Max Q Clear Time (g_c+1/3), s | 13.5  | 8.9  |      | 19.0 | 14.5 | 15.4 |      | 16.3 |      |      |       |       |
| Green Ext Time (p_c), s       | 0.0   | 1.9  |      | 0.0  | 0.0  | 3.0  |      | 0.1  |      |      |       |       |
| <b>Intersection Summary</b>   |       |      |      |      |      |      |      |      |      |      |       |       |
| HCM 6th Ctrl Delay            |       |      |      |      |      |      |      |      |      |      |       | 77.2  |
| HCM 6th LOS                   |       |      |      |      |      |      |      |      |      |      |       | E     |

**Intersection**

Intersection Delay, s/veh 37.8

Intersection LOS E

| Movement            | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | ↘↘   |      | ↑    |      |      | ↑    |
| Traffic Vol, veh/h  | 97   | 0    | 64   | 0    | 0    | 803  |
| Future Vol, veh/h   | 97   | 0    | 64   | 0    | 0    | 803  |
| Peak Hour Factor    | 0.91 | 0.91 | 0.91 | 0.91 | 1.00 | 1.00 |
| Heavy Vehicles, %   | 4    | 4    | 3    | 3    | 1    | 1    |
| Mvmt Flow           | 107  | 0    | 70   | 0    | 0    | 803  |
| Number of Lanes     | 1    | 0    | 1    | 0    | 0    | 1    |

| Approach                      | WB   | NB  | SB   |
|-------------------------------|------|-----|------|
| Opposing Approach             |      | SB  | NB   |
| Opposing Lanes                | 0    | 1   | 1    |
| Conflicting Approach Left NB  |      |     | WB   |
| Conflicting Lanes Left        | 1    | 0   | 1    |
| Conflicting Approach Right SB |      | WB  |      |
| Conflicting Lanes Right       | 1    | 1   | 0    |
| HCM Control Delay             | 10.6 | 8.8 | 43.9 |
| HCM LOS                       | B    | A   | E    |

| Lane                   | NBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, %            | 0%    | 100%  | 0%    |
| Vol Thru, %            | 100%  | 0%    | 100%  |
| Vol Right, %           | 0%    | 0%    | 0%    |
| Sign Control           | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 64    | 97    | 803   |
| LT Vol                 | 0     | 97    | 0     |
| Through Vol            | 64    | 0     | 803   |
| RT Vol                 | 0     | 0     | 0     |
| Lane Flow Rate         | 70    | 107   | 803   |
| Geometry Grp           | 1     | 1     | 1     |
| Degree of Util (X)     | 0.1   | 0.181 | 0.966 |
| Departure Headway (Hd) | 5.122 | 6.107 | 4.332 |
| Convergence, Y/N       | Yes   | Yes   | Yes   |
| Cap                    | 695   | 583   | 835   |
| Service Time           | 3.187 | 4.188 | 2.365 |
| HCM Lane V/C Ratio     | 0.101 | 0.184 | 0.962 |
| HCM Control Delay      | 8.8   | 10.6  | 43.9  |
| HCM Lane LOS           | A     | B     | E     |
| HCM 95th-tile Q        | 0.3   | 0.7   | 15.6  |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 5.9  |      |      |      |      |      |
| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 141  | 72   | 81   | 208  | 189  | 78   |
| Future Vol, veh/h        | 141  | 72   | 81   | 208  | 189  | 78   |
| Conflicting Peds, #/hr   | 3    | 1    | 1    | 0    | 0    | 3    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 96   | 96   | 96   | 96   |
| Heavy Vehicles, %        | 3    | 3    | 1    | 1    | 4    | 4    |
| Mvmt Flow                | 147  | 75   | 84   | 217  | 197  | 81   |

| Major/Minor          | Minor2 | Major1 | Major2 |   |   |   |
|----------------------|--------|--------|--------|---|---|---|
| Conflicting Flow All | 629    | 242    | 281    | 0 | - | 0 |
| Stage 1              | 241    | -      | -      | - | - | - |
| Stage 2              | 388    | -      | -      | - | - | - |
| Critical Hdwy        | 6.43   | 6.23   | 4.11   | - | - | - |
| Critical Hdwy Stg 1  | 5.43   | -      | -      | - | - | - |
| Critical Hdwy Stg 2  | 5.43   | -      | -      | - | - | - |
| Follow-up Hdwy       | 3.527  | 3.327  | 2.209  | - | - | - |
| Pot Cap-1 Maneuver   | 445    | 794    | 1287   | - | - | - |
| Stage 1              | 797    | -      | -      | - | - | - |
| Stage 2              | 683    | -      | -      | - | - | - |
| Platoon blocked, %   |        |        |        | - | - | - |
| Mov Cap-1 Maneuver   | 410    | 792    | 1284   | - | - | - |
| Mov Cap-2 Maneuver   | 410    | -      | -      | - | - | - |
| Stage 1              | 736    | -      | -      | - | - | - |
| Stage 2              | 682    | -      | -      | - | - | - |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 18.3 | 2.2 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1284  | -   | 490   | -   | -   |
| HCM Lane V/C Ratio    | 0.066 | -   | 0.453 | -   | -   |
| HCM Control Delay (s) | 8     | 0   | 18.3  | -   | -   |
| HCM Lane LOS          | A     | A   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0.2   | -   | 2.3   | -   | -   |

| Intersection              |     |
|---------------------------|-----|
| Intersection Delay, s/veh | 8.7 |
| Intersection LOS          | A   |

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h  | 25   | 165  | 3    | 2    | 115  | 9    | 4    | 10   | 1    | 5    | 7    | 40   |
| Future Vol, veh/h   | 25   | 165  | 3    | 2    | 115  | 9    | 4    | 10   | 1    | 5    | 7    | 40   |
| Peak Hour Factor    | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, %   | 2    | 2    | 2    | 2    | 2    | 2    | 0    | 0    | 0    | 6    | 6    | 6    |
| Mvmt Flow           | 31   | 206  | 4    | 3    | 144  | 11   | 5    | 13   | 1    | 6    | 9    | 50   |
| Number of Lanes     | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    |

| Approach                   | EB  | WB  | NB | SB  |
|----------------------------|-----|-----|----|-----|
| Opposing Approach          | WB  | EB  | SB | NB  |
| Opposing Lanes             | 1   | 1   | 1  | 1   |
| Conflicting Approach Left  | SB  | NB  | EB | WB  |
| Conflicting Lanes Left     | 1   | 1   | 1  | 1   |
| Conflicting Approach Right | NB  | SB  | WB | EB  |
| Conflicting Lanes Right    | 1   | 1   | 1  | 1   |
| HCM Control Delay          | 9.1 | 8.4 | 8  | 7.9 |
| HCM LOS                    | A   | A   | A  | A   |

| Lane                   | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, %            | 27%   | 13%   | 2%    | 10%   |
| Vol Thru, %            | 67%   | 85%   | 91%   | 13%   |
| Vol Right, %           | 7%    | 2%    | 7%    | 77%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 15    | 193   | 126   | 52    |
| LT Vol                 | 4     | 25    | 2     | 5     |
| Through Vol            | 10    | 165   | 115   | 7     |
| RT Vol                 | 1     | 3     | 9     | 40    |
| Lane Flow Rate         | 19    | 241   | 158   | 65    |
| Geometry Grp           | 1     | 1     | 1     | 1     |
| Degree of Util (X)     | 0.025 | 0.29  | 0.19  | 0.081 |
| Departure Headway (Hd) | 4.878 | 4.324 | 4.34  | 4.464 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 734   | 837   | 828   | 803   |
| Service Time           | 2.905 | 2.324 | 2.356 | 2.487 |
| HCM Lane V/C Ratio     | 0.026 | 0.288 | 0.191 | 0.081 |
| HCM Control Delay      | 8     | 9.1   | 8.4   | 7.9   |
| HCM Lane LOS           | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0.1   | 1.2   | 0.7   | 0.3   |

Intersection

Intersection Delay, s/veh 10.7

Intersection LOS B

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Vol, veh/h  | 16   | 25   | 170  | 16   | 22   | 4    | 243  | 58   | 26   | 3    | 47   | 17   |
| Future Vol, veh/h   | 16   | 25   | 170  | 16   | 22   | 4    | 243  | 58   | 26   | 3    | 47   | 17   |
| 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 |
| Heavy Vehicles, %   | 1    | 1    | 1    | 0    | 0    | 0    | 3    | 3    | 3    | 6    | 6    | 6    |
| Mvmt Flow           | 17   | 27   | 183  | 17   | 24   | 4    | 261  | 62   | 28   | 3    | 51   | 18   |
| Number of Lanes     | 1    | 1    | 0    | 0    | 1    | 0    | 1    | 1    | 0    | 1    | 1    | 0    |

| Approach                      | EB  | WB  | NB   | SB |
|-------------------------------|-----|-----|------|----|
| Opposing Approach             | WB  | EB  | SB   | NB |
| Opposing Lanes                | 1   | 2   | 2    | 2  |
| Conflicting Approach Left SB  |     | NB  | EB   | WB |
| Conflicting Lanes Left        | 2   | 2   | 2    | 1  |
| Conflicting Approach Right NB |     | SB  | WB   | EB |
| Conflicting Lanes Right       | 2   | 2   | 1    | 2  |
| HCM Control Delay             | 9.9 | 9.5 | 11.8 | 9  |
| HCM LOS                       | A   | A   | B    | A  |

| Lane                   | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 100%  | 0%    | 100%  | 1%    | 38%   | 100%  | 0%    |
| Vol Thru, %            | 0%    | 69%   | 0%    | 13%   | 52%   | 0%    | 73%   |
| Vol Right, %           | 0%    | 31%   | 0%    | 86%   | 10%   | 0%    | 26%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 243   | 84    | 14    | 197   | 42    | 3     | 64    |
| LT Vol                 | 243   | 0     | 14    | 2     | 16    | 3     | 0     |
| Through Vol            | 0     | 58    | 0     | 25    | 22    | 0     | 47    |
| RT Vol                 | 0     | 26    | 0     | 170   | 4     | 0     | 17    |
| Lane Flow Rate         | 261   | 90    | 15    | 211   | 45    | 3     | 69    |
| Geometry Grp           | 5     | 5     | 5     | 5     | 4b    | 5     | 5     |
| Degree of Util (X)     | 0.423 | 0.128 | 0.027 | 0.299 | 0.074 | 0.005 | 0.106 |
| Departure Headway (Hd) | 5.83  | 5.108 | 6.201 | 5.093 | 5.938 | 6.224 | 5.534 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 614   | 696   | 575   | 702   | 598   | 570   | 640   |
| Service Time           | 3.604 | 2.882 | 3.962 | 2.853 | 4.026 | 4.021 | 3.33  |
| HCM Lane V/C Ratio     | 0.425 | 0.129 | 0.026 | 0.301 | 0.075 | 0.005 | 0.108 |
| HCM Control Delay      | 12.9  | 8.6   | 9.1   | 10    | 9.5   | 9.1   | 9     |
| HCM Lane LOS           | B     | A     | A     | A     | A     | A     | A     |
| HCM 95th-tile Q        | 2.1   | 0.4   | 0.1   | 1.3   | 0.2   | 0     | 0.4   |

# MOVEMENT SUMMARY

**Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2023 PM)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

Existing RAB  
 Site Category: (None)  
 Roundabout

| Vehicle Movement Performance |      |           |              |     |               |     |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|-----|---------------|-----|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |     | Arrival Flows |     | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue | Dist     | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %   | [ Total HV ]  | %   | v/c       | sec         |                  | [ Veh. ]          | [ Dist ] |           |                |                     | mph         |
| East: Harkins St (WB)        |      |           |              |     |               |     |           |             |                  |                   |          |           |                |                     |             |
| 6                            | T1   | All MCs   | 203          | 1.8 | 203           | 1.8 | 0.264     | 7.4         | LOS A            | 1.5               | 37.7     | 0.61      | 0.63           | 0.61                | 34.1        |
| 16                           | R2   | All MCs   | 38           | 1.8 | 38            | 1.8 | 0.264     | 7.1         | LOS A            | 1.5               | 37.7     | 0.61      | 0.63           | 0.61                | 33.8        |
| Approach                     |      |           | 241          | 1.8 | 241           | 1.8 | 0.264     | 7.3         | LOS A            | 1.5               | 37.7     | 0.61      | 0.63           | 0.61                | 34.0        |
| North: Wheaton Way (SB)      |      |           |              |     |               |     |           |             |                  |                   |          |           |                |                     |             |
| 7u                           | U    | All MCs   | 1            | 2.4 | 1             | 2.4 | 0.241     | 12.0        | LOS B            | 1.4               | 34.5     | 0.42      | 0.57           | 0.42                | 34.0        |
| 7                            | L2   | All MCs   | 45           | 2.4 | 45            | 2.4 | 0.241     | 10.0        | LOS A            | 1.4               | 34.5     | 0.42      | 0.57           | 0.42                | 34.0        |
| 14                           | R2   | All MCs   | 223          | 2.4 | 223           | 2.4 | 0.241     | 5.5         | LOS A            | 1.4               | 34.5     | 0.42      | 0.57           | 0.42                | 34.3        |
| Approach                     |      |           | 269          | 2.4 | 269           | 2.4 | 0.241     | 6.3         | LOS A            | 1.4               | 34.5     | 0.42      | 0.57           | 0.42                | 34.2        |
| West: Manette Bridge (EB)    |      |           |              |     |               |     |           |             |                  |                   |          |           |                |                     |             |
| 5                            | L2   | All MCs   | 488          | 2.1 | 488           | 2.1 | 0.680     | 9.5         | LOS A            | 7.5               | 191.4    | 0.36      | 0.53           | 0.36                | 33.2        |
| 2                            | T1   | All MCs   | 387          | 2.1 | 387           | 2.1 | 0.680     | 5.2         | LOS A            | 7.5               | 191.4    | 0.36      | 0.53           | 0.36                | 33.7        |
| Approach                     |      |           | 876          | 2.1 | 876           | 2.1 | 0.680     | 7.6         | LOS A            | 7.5               | 191.4    | 0.36      | 0.53           | 0.36                | 33.4        |
| All Vehicles                 |      |           | 1386         | 2.1 | 1386          | 2.1 | 0.680     | 7.3         | LOS A            | 7.5               | 191.4    | 0.42      | 0.55           | 0.42                | 33.7        |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

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

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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.

**SIDRA INTERSECTION 9.1 | Copyright © 2000-2024 Akcelik and Associates Pty Ltd | sidrasolutions.com**

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#554-1896-192\LOS\2023.sip9

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |   |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|---|
| Int Delay, s/veh         | 3.4  |      |      |      |      |      |      |      |      |      |      |      |   |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |   |
| Lane Configurations      |      |      |      |      | ↶    |      |      |      |      |      |      |      | ↷ |
| Traffic Vol, veh/h       | 0    | 0    | 0    | 95   | 17   | 0    | 0    | 0    | 0    | 0    | 1    | 72   |   |
| Future Vol, veh/h        | 0    | 0    | 0    | 95   | 17   | 0    | 0    | 0    | 0    | 0    | 1    | 72   |   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 3    |   |
| Sign Control             | Free | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |   |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |   |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 0    |   |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |   |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |   |
| Peak Hour Factor         | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   | 89   |   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 6    | 6    | 6    | 0    | 0    | 0    | 1    | 1    | 1    |   |
| Mvmt Flow                | 0    | 0    | 0    | 107  | 19   | 0    | 0    | 0    | 0    | 0    | 1    | 81   |   |

| Major/Minor          | Major2 |   |   | Minor2 |       |       |
|----------------------|--------|---|---|--------|-------|-------|
| Conflicting Flow All | 0      | 0 | 0 | -      | 233   | 22    |
| Stage 1              | -      | - | - | -      | 233   | -     |
| Stage 2              | -      | - | - | -      | 0     | -     |
| Critical Hdwy        | 4.16   | - | - | -      | 6.51  | 6.21  |
| Critical Hdwy Stg 1  | -      | - | - | -      | 5.51  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | -     | -     |
| Follow-up Hdwy       | 2.254  | - | - | -      | 4.009 | 3.309 |
| Pot Cap-1 Maneuver   | -      | - | 0 | 0      | 669   | 1058  |
| Stage 1              | -      | - | 0 | 0      | 714   | -     |
| Stage 2              | -      | - | 0 | 0      | -     | -     |
| Platoon blocked, %   | -      |   |   | -      |       |       |
| Mov Cap-1 Maneuver   | -      | - | - | -      | 0     | 1058  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | 0     | -     |
| Stage 1              | -      | - | - | -      | 0     | -     |
| Stage 2              | -      | - | - | -      | 0     | -     |

| Approach             | WB | SB  |
|----------------------|----|-----|
| HCM Control Delay, s |    | 8.7 |
| HCM LOS              |    | A   |

| Minor Lane/Major Mvmt | WBL | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | 1058  |
| HCM Lane V/C Ratio    | -   | -   | 0.076 |
| HCM Control Delay (s) | -   | -   | 8.7   |
| HCM Lane LOS          | -   | -   | A     |
| HCM 95th %tile Q(veh) | -   | -   | 0.2   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.9  |      |      |      |      |      |
| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
| Lane Configurations      | ↔    |      | ↔    |      | ↔    | ↔    |
| Traffic Vol, veh/h       | 30   | 38   | 294  | 44   | 50   | 197  |
| Future Vol, veh/h        | 30   | 38   | 294  | 44   | 50   | 197  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | 100  | -    |
| Veh in Median Storage, # | 0    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 96   | 96   | 96   | 96   | 96   | 96   |
| Heavy Vehicles, %        | 0    | 0    | 2    | 2    | 0    | 0    |
| Mvmt Flow                | 31   | 40   | 306  | 46   | 52   | 205  |

| Major/Minor          | Minor1 | Major1 | Major2 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 638    | 329    | 0      | 0 | 352  |
| Stage 1              | 329    | -      | -      | - | -    |
| Stage 2              | 309    | -      | -      | - | -    |
| Critical Hdwy        | 6.4    | 6.2    | -      | - | 4.1  |
| Critical Hdwy Stg 1  | 5.4    | -      | -      | - | -    |
| Critical Hdwy Stg 2  | 5.4    | -      | -      | - | -    |
| Follow-up Hdwy       | 3.5    | 3.3    | -      | - | 2.2  |
| Pot Cap-1 Maneuver   | 444    | 717    | -      | - | 1218 |
| Stage 1              | 734    | -      | -      | - | -    |
| Stage 2              | 749    | -      | -      | - | -    |
| Platoon blocked, %   |        |        | -      | - | -    |
| Mov Cap-1 Maneuver   | 425    | 717    | -      | - | 1218 |
| Mov Cap-2 Maneuver   | 425    | -      | -      | - | -    |
| Stage 1              | 734    | -      | -      | - | -    |
| Stage 2              | 717    | -      | -      | - | -    |

| Approach             | WB   | NB | SB  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 12.5 | 0  | 1.6 |
| HCM LOS              | B    |    |     |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 550   | 1218  |
| HCM Lane V/C Ratio    | -   | -        | 0.129 | 0.043 |
| HCM Control Delay (s) | -   | -        | 12.5  | 8.1   |
| HCM Lane LOS          | -   | -        | B     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.4   | 0.1   |

| Intersection              |      |
|---------------------------|------|
| Intersection Delay, s/veh | 12.7 |
| Intersection LOS          | B    |

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↶    | ↷    |      | ↶    | ↷    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h  | 8    | 182  | 53   | 12   | 324  | 7    | 87   | 8    | 32   | 5    | 5    | 7    |
| Future Vol, veh/h   | 8    | 182  | 53   | 12   | 324  | 7    | 87   | 8    | 32   | 5    | 5    | 7    |
| Peak Hour Factor    | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles, %   | 2    | 2    | 2    | 5    | 5    | 5    | 2    | 2    | 2    | 0    | 0    | 0    |
| Mvmt Flow           | 9    | 212  | 62   | 14   | 377  | 8    | 101  | 9    | 37   | 6    | 6    | 8    |
| Number of Lanes     | 1    | 1    | 0    | 1    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    |

| Approach                   | EB   | WB   | NB   | SB |
|----------------------------|------|------|------|----|
| Opposing Approach          | WB   | EB   | SB   | NB |
| Opposing Lanes             | 2    | 2    | 1    | 1  |
| Conflicting Approach Left  | SB   | NB   | EB   | WB |
| Conflicting Lanes Left     | 1    | 1    | 2    | 2  |
| Conflicting Approach Right | NB   | SB   | WB   | EB |
| Conflicting Lanes Right    | 1    | 1    | 2    | 2  |
| HCM Control Delay          | 11.4 | 14.7 | 10.4 | 9  |
| HCM LOS                    | B    | B    | B    | A  |

| Lane                   | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|
| Vol Left, %            | 69%   | 100%  | 0%    | 100%  | 0%    | 29%   |
| Vol Thru, %            | 6%    | 0%    | 77%   | 0%    | 98%   | 29%   |
| Vol Right, %           | 25%   | 0%    | 23%   | 0%    | 2%    | 41%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 127   | 8     | 235   | 12    | 331   | 17    |
| LT Vol                 | 87    | 8     | 0     | 12    | 0     | 5     |
| Through Vol            | 8     | 0     | 182   | 0     | 324   | 5     |
| RT Vol                 | 32    | 0     | 53    | 0     | 7     | 7     |
| Lane Flow Rate         | 148   | 9     | 273   | 14    | 385   | 20    |
| Geometry Grp           | 2     | 5     | 5     | 5     | 5     | 2     |
| Degree of Util (X)     | 0.23  | 0.015 | 0.397 | 0.023 | 0.567 | 0.032 |
| Departure Headway (Hd) | 5.605 | 5.891 | 5.227 | 5.82  | 5.301 | 5.791 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 634   | 602   | 680   | 610   | 674   | 622   |
| Service Time           | 3.704 | 3.684 | 3.019 | 3.604 | 3.085 | 3.791 |
| HCM Lane V/C Ratio     | 0.233 | 0.015 | 0.401 | 0.023 | 0.571 | 0.032 |
| HCM Control Delay      | 10.4  | 8.8   | 11.5  | 8.7   | 14.9  | 9     |
| HCM Lane LOS           | B     | A     | B     | A     | B     | A     |
| HCM 95th-tile Q        | 0.9   | 0     | 1.9   | 0.1   | 3.6   | 0.1   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |       |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Int Delay, s/veh         | 4.6  |      |      |      |      |      |      |      |      |      |      |       |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR   |
| Lane Configurations      |      |      |      |      | ↔    | ↔    |      | ↔    |      |      | ↔    |       |
| Traffic Vol, veh/h       | 0    | 0    | 0    | 111  | 4    | 227  | 42   | 102  | 0    | 0    | 103  | 274   |
| Future Vol, veh/h        | 0    | 0    | 0    | 111  | 4    | 227  | 42   | 102  | 0    | 0    | 103  | 274   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Sign Control             | Free | Free | Free | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free  |
| RT Channelized           | -    | -    | None | -    | -    | Stop | -    | -    | None | -    | -    | Yield |
| Storage Length           | -    | -    | -    | -    | -    | 0    | -    | -    | -    | -    | -    | -     |
| Veh in Median Storage, # | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     |
| Peak Hour Factor         | 96   | 96   | 96   | 96   | 96   | 96   | 96   | 96   | 96   | 96   | 96   | 96    |
| Heavy Vehicles, %        | 0    | 0    | 0    | 2    | 2    | 2    | 2    | 2    | 2    | 4    | 4    | 4     |
| Mvmt Flow                | 0    | 0    | 0    | 116  | 4    | 236  | 44   | 106  | 0    | 0    | 107  | 285   |

| Major/Minor          | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 301    | 301    | 106    |
| Stage 1              | 194    | 194    | -      |
| Stage 2              | 107    | 107    | -      |
| Critical Hdwy        | 6.42   | 6.52   | 6.22   |
| Critical Hdwy Stg 1  | 5.42   | 5.52   | -      |
| Critical Hdwy Stg 2  | 5.42   | 5.52   | -      |
| Follow-up Hdwy       | 3.518  | 4.018  | 3.318  |
| Pot Cap-1 Maneuver   | 691    | 612    | 948    |
| Stage 1              | 839    | 740    | -      |
| Stage 2              | 917    | 807    | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 669    | 0      | 948    |
| Mov Cap-2 Maneuver   | 669    | 0      | -      |
| Stage 1              | 812    | 0      | -      |
| Stage 2              | 917    | 0      | -      |

| Approach             | WB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 10.6 | 2.2 | 0  |
| HCM LOS              | B    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBTWBLn1 | WBLn2 | SBT   | SBR |
|-----------------------|-------|----------|-------|-------|-----|
| Capacity (veh/h)      | 1484  | -        | 669   | 948   | -   |
| HCM Lane V/C Ratio    | 0.029 | -        | 0.179 | 0.249 | -   |
| HCM Control Delay (s) | 7.5   | 0        | 11.6  | 10.1  | -   |
| HCM Lane LOS          | A     | A        | B     | B     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -        | 0.6   | 1     | -   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 13.5 |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      |      |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h       | 87   | 62   | 266  | 0    | 0    | 0    | 0    | 68   | 23   | 204  | 200  | 0    |
| Future Vol, veh/h        | 87   | 62   | 266  | 0    | 0    | 0    | 0    | 68   | 23   | 204  | 200  | 0    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   | 94   |
| Heavy Vehicles, %        | 1    | 1    | 1    | 0    | 0    | 0    | 7    | 7    | 7    | 2    | 2    | 2    |
| Mvmt Flow                | 93   | 66   | 283  | 0    | 0    | 0    | 0    | 72   | 24   | 217  | 213  | 0    |

| Major/Minor          | Minor2 |       |       | Major1 |   |   | Major2 |   |   |
|----------------------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 731    | 743   | 213   | -      | 0 | 0 | 96     | 0 | 0 |
| Stage 1              | 647    | 647   | -     | -      | - | - | -      | - | - |
| Stage 2              | 84     | 96    | -     | -      | - | - | -      | - | - |
| Critical Hdwy        | 6.41   | 6.51  | 6.21  | -      | - | - | 4.12   | - | - |
| Critical Hdwy Stg 1  | 5.41   | 5.51  | -     | -      | - | - | -      | - | - |
| Critical Hdwy Stg 2  | 5.41   | 5.51  | -     | -      | - | - | -      | - | - |
| Follow-up Hdwy       | 3.509  | 4.009 | 3.309 | -      | - | - | 2.218  | - | - |
| Pot Cap-1 Maneuver   | 390    | 344   | 830   | 0      | - | - | 1498   | - | 0 |
| Stage 1              | 523    | 468   | -     | 0      | - | - | -      | - | 0 |
| Stage 2              | 942    | 817   | -     | 0      | - | - | -      | - | 0 |
| Platoon blocked, %   |        |       |       |        |   |   |        |   |   |
| Mov Cap-1 Maneuver   | 326    | 0     | 830   | -      | - | - | 1498   | - | - |
| Mov Cap-2 Maneuver   | 326    | 0     | -     | -      | - | - | -      | - | - |
| Stage 1              | 523    | 0     | -     | -      | - | - | -      | - | - |
| Stage 2              | 788    | 0     | -     | -      | - | - | -      | - | - |

| Approach             | EB   | NB | SB  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 25.7 | 0  | 3.9 |
| HCM LOS              | D    |    |     |

| Minor Lane/Major Mvmt | NBT | NBR | EBLn1 | SBL   | SBT |
|-----------------------|-----|-----|-------|-------|-----|
| Capacity (veh/h)      | -   | -   | 601   | 1498  | -   |
| HCM Lane V/C Ratio    | -   | -   | 0.735 | 0.145 | -   |
| HCM Control Delay (s) | -   | -   | 25.7  | 7.8   | 0   |
| HCM Lane LOS          | -   | -   | D     | A     | A   |
| HCM 95th %tile Q(veh) | -   | -   | 6.3   | 0.5   | -   |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 25.2 |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   | ↑    |      | ↑↑   |      |      |      |      |      | ↑    | ↑    |
| Traffic Vol, veh/h       | 0    | 406  | 358  | 351  | 676  | 0    | 0    | 0    | 0    | 46   | 11   | 119  |
| Future Vol, veh/h        | 0    | 406  | 358  | 351  | 676  | 0    | 0    | 0    | 0    | 46   | 11   | 119  |
| Conflicting Peds, #/hr   | 0    | 0    | 3    | 3    | 0    | 0    | 0    | 0    | 0    | 2    | 0    | 2    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | Free | -    | -    | None | -    | -    | None | -    | -    | Stop |
| Storage Length           | -    | -    | 175  | -    | -    | -    | -    | -    | -    | -    | -    | 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, %        | 4    | 4    | 4    | 3    | 3    | 3    | 0    | 0    | 0    | 4    | 4    | 4    |
| Mvmt Flow                | 0    | 437  | 385  | 377  | 727  | 0    | 0    | 0    | 0    | 49   | 12   | 128  |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor2 |      |      |      |
|----------------------|--------|---|---|--------|---|---|--------|------|------|------|
| Conflicting Flow All | -      | 0 | - | 440    | 0 | 0 |        | 1702 | 1921 | 366  |
| Stage 1              | -      | - | - | -      | - | - |        | 1481 | 1481 | -    |
| Stage 2              | -      | - | - | -      | - | - |        | 221  | 440  | -    |
| Critical Hdwy        | -      | - | - | 4.16   | - | - |        | 6.88 | 6.58 | 6.98 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - |        | 5.88 | 5.58 | -    |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - |        | 5.88 | 5.58 | -    |
| Follow-up Hdwy       | -      | - | - | 2.23   | - | - |        | 3.54 | 4.04 | 3.34 |
| Pot Cap-1 Maneuver   | 0      | - | 0 | 1109   | - | 0 |        | 81   | 65   | 625  |
| Stage 1              | 0      | - | 0 | -      | - | 0 |        | 172  | 184  | -    |
| Stage 2              | 0      | - | 0 | -      | - | 0 |        | 789  | 571  | -    |
| Platoon blocked, %   |        | - |   |        | - |   |        |      |      |      |
| Mov Cap-1 Maneuver   | -      | - | - | 1109   | - | - |        | ~ 35 | 0    | 624  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - |        | ~ 35 | 0    | -    |
| Stage 1              | -      | - | - | -      | - | - |        | 172  | 0    | -    |
| Stage 2              | -      | - | - | -      | - | - |        | 339  | 0    | -    |

| Approach             | EB | WB  | SB    |
|----------------------|----|-----|-------|
| HCM Control Delay, s | 0  | 4.3 | 205.2 |
| HCM LOS              |    |     | F     |

| Minor Lane/Major Mvmt | EBT | WBL  | WBT | SBLn1  | SBLn2 |
|-----------------------|-----|------|-----|--------|-------|
| Capacity (veh/h)      | -   | 1109 | -   | 35     | 624   |
| HCM Lane V/C Ratio    | -   | 0.34 | -   | 1.751  | 0.205 |
| HCM Control Delay (s) | -   | 9.9  | 1.4 | \$ 608 | 12.3  |
| HCM Lane LOS          | -   | A    | A   | F      | B     |
| HCM 95th %tile Q(veh) | -   | 1.5  | -   | 6.7    | 0.8   |

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

HCM 6th Signalized Intersection Summary  
 105: SR 3 NB Off Ramp/SR 3 NB On Ramp & Loxie Eagans Blvd

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Lane Configurations          |      | ↕↕   |      |      | ↕↕   |      |      | ↕    | ↗    |     |     |     |
| Traffic Volume (veh/h)       | 173  | 297  | 0    | 0    | 802  | 218  | 417  | 0    | 186  | 0   | 0   | 0   |
| Future Volume (veh/h)        | 173  | 297  | 0    | 0    | 802  | 218  | 417  | 0    | 186  | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 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 |     |     |     |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln       | 1585 | 1585 | 0    | 0    | 1585 | 1585 | 1560 | 1560 | 1560 |     |     |     |
| Adj Flow Rate, veh/h         | 184  | 316  | 0    | 0    | 853  | 0    | 444  | 0    | 198  |     |     |     |
| Peak Hour Factor             | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |     |     |     |
| Percent Heavy Veh, %         | 2    | 2    | 0    | 0    | 2    | 2    | 4    | 4    | 4    |     |     |     |
| Cap, veh/h                   | 0    | 1272 | 0    | 0    | 1272 |      | 566  | 0    | 501  |     |     |     |
| Arrive On Green              | 0.00 | 0.42 | 0.00 | 0.00 | 0.42 | 0.00 | 0.38 | 0.00 | 0.38 |     |     |     |
| Sat Flow, veh/h              | 0    | 3091 | 0    | 0    | 3170 | 0    | 1485 | 0    | 1315 |     |     |     |
| Grp Volume(v), veh/h         | 0    | 316  | 0    | 0    | 853  | 0    | 444  | 0    | 198  |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1506 | 0    | 0    | 1506 | 0    | 1485 | 0    | 1315 |     |     |     |
| Q Serve(g_s), s              | 0.0  | 3.2  | 0.0  | 0.0  | 10.7 | 0.0  | 12.4 | 0.0  | 5.1  |     |     |     |
| Cycle Q Clear(g_c), s        | 0.0  | 3.2  | 0.0  | 0.0  | 10.7 | 0.0  | 12.4 | 0.0  | 5.1  |     |     |     |
| Prop In Lane                 | 0.00 |      | 0.00 | 0.00 |      | 0.00 | 1.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h       | 0    | 1272 | 0    | 0    | 1272 |      | 566  | 0    | 501  |     |     |     |
| V/C Ratio(X)                 | 0.00 | 0.25 | 0.00 | 0.00 | 0.67 |      | 0.78 | 0.00 | 0.40 |     |     |     |
| Avail Cap(c_a), veh/h        | 0    | 4714 | 0    | 0    | 4136 |      | 957  | 0    | 847  |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)           | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh     | 0.0  | 8.7  | 0.0  | 0.0  | 10.9 | 0.0  | 12.8 | 0.0  | 10.6 |     |     |     |
| Incr Delay (d2), s/veh       | 0.0  | 0.1  | 0.0  | 0.0  | 0.6  | 0.0  | 2.4  | 0.0  | 0.5  |     |     |     |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(95%),veh/ln     | 0.0  | 1.4  | 0.0  | 0.0  | 4.9  | 0.0  | 6.3  | 0.0  | 2.2  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |     |     |     |
| LnGrp Delay(d),s/veh         | 0.0  | 8.8  | 0.0  | 0.0  | 11.5 | 0.0  | 15.2 | 0.0  | 11.1 |     |     |     |
| LnGrp LOS                    | A    | A    | A    | A    | B    |      | B    | A    | B    |     |     |     |
| Approach Vol, veh/h          |      | 316  |      |      | 853  |      |      | 642  |      |     |     |     |
| Approach Delay, s/veh        |      | 8.8  |      |      | 11.5 |      |      | 13.9 |      |     |     |     |
| Approach LOS                 |      | A    |      |      | B    |      |      | B    |      |     |     |     |
| Timer - Assigned Phs         | 1    | 2    |      | 4    |      | 6    |      |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s     | 0.0  | 24.4 |      | 22.5 |      | 24.4 |      |      |      |     |     |     |
| Change Period (Y+Rc), s      | 4.0  | 4.6  |      | 4.6  |      | 4.6  |      |      |      |     |     |     |
| Max Green Setting (Gmax), s  | 5.0  | 64.4 |      | 30.2 |      | 73.4 |      |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s | 0.0  | 12.7 |      | 14.4 |      | 5.2  |      |      |      |     |     |     |
| Green Ext Time (p_c), s      | 0.0  | 7.1  |      | 3.2  |      | 2.2  |      |      |      |     |     |     |

Intersection Summary

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

Notes

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

HCM 6th Signalized Intersection Summary  
 137: Wheaton Way (SR 303) & Broad St/Private Drwy

04/29/2024



| Movement                      | EBL  | EBT   | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|-------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations           |      |       |      |      |      |       |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 54   | 0     | 30   | 38   | 1    | 21    | 39   | 1466 | 50   | 37   | 1308 | 42   |
| Future Volume (veh/h)         | 54   | 0     | 30   | 38   | 1    | 21    | 39   | 1466 | 50   | 37   | 1308 | 42   |
| Initial Q (Qb), veh           | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)           | 0.97 |       | 0.96 | 0.97 |      | 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   |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln        | 1397 | 1397  | 1397 | 1572 | 1572 | 1572  | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h          | 56   | 0     | 31   | 39   | 1    | 22    | 40   | 1511 | 52   | 38   | 1348 | 43   |
| 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, %          | 17   | 17    | 17   | 3    | 3    | 3     | 1    | 1    | 1    | 2    | 2    | 2    |
| Cap, veh/h                    | 143  | 0     | 112  | 142  | 6    | 121   | 334  | 2391 | 82   | 281  | 2378 | 76   |
| Arrive On Green               | 0.10 | 0.00  | 0.10 | 0.10 | 0.10 | 0.10  | 0.03 | 0.80 | 0.80 | 0.03 | 0.80 | 0.80 |
| Sat Flow, veh/h               | 1183 | 0     | 1140 | 1325 | 56   | 1238  | 1521 | 2991 | 103  | 1509 | 2977 | 95   |
| Grp Volume(v), veh/h          | 56   | 0     | 31   | 39   | 0    | 23    | 40   | 765  | 798  | 38   | 681  | 710  |
| Grp Sat Flow(s),veh/h/ln      | 1183 | 0     | 1140 | 1325 | 0    | 1294  | 1521 | 1518 | 1576 | 1509 | 1506 | 1567 |
| Q Serve(g_s), s               | 7.1  | 0.0   | 3.9  | 4.4  | 0.0  | 2.5   | 0.7  | 31.8 | 32.1 | 0.7  | 25.9 | 26.0 |
| Cycle Q Clear(g_c), s         | 9.7  | 0.0   | 3.9  | 8.3  | 0.0  | 2.5   | 0.7  | 31.8 | 32.1 | 0.7  | 25.9 | 26.0 |
| Prop In Lane                  | 1.00 |       | 1.00 | 1.00 |      | 0.96  | 1.00 |      | 0.07 | 1.00 |      | 0.06 |
| Lane Grp Cap(c), veh/h        | 143  | 0     | 112  | 142  | 0    | 127   | 334  | 1213 | 1260 | 281  | 1203 | 1251 |
| V/C Ratio(X)                  | 0.39 | 0.00  | 0.28 | 0.27 | 0.00 | 0.18  | 0.12 | 0.63 | 0.63 | 0.14 | 0.57 | 0.57 |
| Avail Cap(c_a), veh/h         | 270  | 0     | 234  | 285  | 0    | 265   | 391  | 1213 | 1260 | 338  | 1203 | 1251 |
| 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 | 0.00  | 1.00 | 1.00 | 0.00 | 1.00  | 0.49 | 0.49 | 0.49 | 0.82 | 0.82 | 0.82 |
| Uniform Delay (d), s/veh      | 69.1 | 0.0   | 65.3 | 69.1 | 0.0  | 64.6  | 4.9  | 6.3  | 6.4  | 6.2  | 5.8  | 5.8  |
| Incr Delay (d2), s/veh        | 1.8  | 0.0   | 1.3  | 1.0  | 0.0  | 0.7   | 0.1  | 1.2  | 1.2  | 0.2  | 1.6  | 1.5  |
| Initial Q Delay(d3),s/veh     | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/ln      | 4.1  | 0.0   | 2.2  | 2.8  | 0.0  | 1.6   | 0.4  | 12.9 | 13.4 | 0.5  | 11.9 | 12.3 |
| Unsig. Movement Delay, s/veh  |      |       |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh          | 70.8 | 0.0   | 66.6 | 70.1 | 0.0  | 65.3  | 4.9  | 7.6  | 7.6  | 6.4  | 7.4  | 7.3  |
| LnGrp LOS                     | E    | A     | E    | E    | A    | E     | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h           |      | 87    |      |      | 62   |       |      | 1603 |      |      | 1429 |      |
| Approach Delay, s/veh         |      | 69.3  |      |      | 68.3 |       |      | 7.5  |      |      | 7.3  |      |
| Approach LOS                  |      | E     |      |      | E    |       |      | A    |      |      | A    |      |
| Timer - Assigned Phs          | 1    | 2     |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 8.0  | 128.7 |      | 19.3 | 8.1  | 128.6 |      | 19.3 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.0  | 4.0   |      | 4.0  | 4.0  | 4.0   |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 10.0 | 86.0  |      | 32.0 | 10.0 | 102.0 |      | 32.0 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 12.5 | 34.1  |      | 11.7 | 2.7  | 28.0  |      | 10.3 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.0  | 18.2  |      | 0.3  | 0.0  | 15.2  |      | 0.2  |      |      |      |      |
| <b>Intersection Summary</b>   |      |       |      |      |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay            |      |       |      |      |      |       |      |      |      |      | 10.3 |      |
| HCM 6th LOS                   |      |       |      |      |      |       |      |      |      |      | B    |      |

HCM 6th Signalized Intersection Summary  
 202: SR 16 Spur/Sam Christopherson Dr & SR 3

04/29/2024



| Movement                     | EBL   | EBT  | EBR  | WBL   | WBT  | WBR   | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|------------------------------|-------|------|------|-------|------|-------|------|-------|------|------|------|------|
| Lane Configurations          | ↖     | ↑    | ↗    | ↖     | ↑    |       | ↖    | ↑     |      | ↖    | ↑    | ↗    |
| Traffic Volume (veh/h)       | 5     | 513  | 311  | 27    | 366  | 4     | 258  | 141   | 33   | 139  | 403  | 53   |
| Future Volume (veh/h)        | 5     | 513  | 311  | 27    | 366  | 4     | 258  | 141   | 33   | 139  | 403  | 53   |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0     | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 1.00 | 1.00  |      | 1.00  | 1.00 |       | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |       | No   |      | No    |      | No    |      | No    |      | No   |      | No   |
| Adj Sat Flow, veh/h/ln       | 1560  | 1560 | 1560 | 1522  | 1522 | 1522  | 1510 | 1510  | 1510 | 1585 | 1585 | 1585 |
| Adj Flow Rate, veh/h         | 5     | 534  | 0    | 28    | 381  | 4     | 269  | 147   | 34   | 145  | 420  | 55   |
| Peak Hour Factor             | 0.96  | 0.96 | 0.96 | 0.96  | 0.96 | 0.96  | 0.96 | 0.96  | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 4     | 4    | 4    | 7     | 7    | 7     | 8    | 8     | 8    | 2    | 2    | 2    |
| Cap, veh/h                   | 7     | 574  |      | 32    | 580  | 6     | 291  | 419   | 97   | 166  | 418  | 354  |
| Arrive On Green              | 0.01  | 0.37 | 0.00 | 0.02  | 0.39 | 0.39  | 0.20 | 0.35  | 0.35 | 0.11 | 0.26 | 0.26 |
| Sat Flow, veh/h              | 1485  | 1560 | 1322 | 1450  | 1503 | 16    | 1438 | 1186  | 274  | 1509 | 1585 | 1343 |
| Grp Volume(v), veh/h         | 5     | 534  | 0    | 28    | 0    | 385   | 269  | 0     | 181  | 145  | 420  | 55   |
| Grp Sat Flow(s),veh/h/ln     | 1485  | 1560 | 1322 | 1450  | 0    | 1519  | 1438 | 0     | 1460 | 1509 | 1585 | 1343 |
| Q Serve(g_s), s              | 0.5   | 46.2 | 0.0  | 2.7   | 0.0  | 29.3  | 25.8 | 0.0   | 12.8 | 13.3 | 37.0 | 4.4  |
| Cycle Q Clear(g_c), s        | 0.5   | 46.2 | 0.0  | 2.7   | 0.0  | 29.3  | 25.8 | 0.0   | 12.8 | 13.3 | 37.0 | 4.4  |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00  |      | 0.01  | 1.00 |       | 0.19 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 7     | 574  |      | 32    | 0    | 586   | 291  | 0     | 516  | 166  | 418  | 354  |
| V/C Ratio(X)                 | 0.67  | 0.93 |      | 0.87  | 0.00 | 0.66  | 0.93 | 0.00  | 0.35 | 0.87 | 1.01 | 0.16 |
| Avail Cap(c_a), veh/h        | 169   | 722  |      | 103   | 0    | 606   | 348  | 0     | 516  | 247  | 418  | 354  |
| 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 | 0.00 | 1.00  | 0.00 | 1.00  | 1.00 | 0.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 69.7  | 42.6 | 0.0  | 68.4  | 0.0  | 35.5  | 55.0 | 0.0   | 33.5 | 61.6 | 51.7 | 39.7 |
| Incr Delay (d2), s/veh       | 56.1  | 16.7 | 0.0  | 36.1  | 0.0  | 3.3   | 28.3 | 0.0   | 0.3  | 19.0 | 45.5 | 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(95%),veh/ln     | 0.5   | 27.3 | 0.0  | 2.4   | 0.0  | 16.7  | 17.0 | 0.0   | 8.1  | 10.0 | 27.4 | 2.6  |
| Unsig. Movement Delay, s/veh |       |      |      |       |      |       |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 125.8 | 59.3 | 0.0  | 104.6 | 0.0  | 38.8  | 83.3 | 0.0   | 33.8 | 80.6 | 97.2 | 39.9 |
| LnGrp LOS                    | F     | E    |      | F     | A    | D     | F    | A     | C    | F    | F    | D    |
| Approach Vol, veh/h          |       | 539  |      |       | 413  |       |      | 450   |      |      | 620  |      |
| Approach Delay, s/veh        |       | 59.9 |      |       | 43.3 |       |      | 63.4  |      |      | 88.3 |      |
| Approach LOS                 |       | E    |      |       | D    |       |      | E     |      |      | F    |      |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4     | 5    | 6     | 7    | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.7   | 57.1 | 33.5 | 42.1  | 5.3  | 59.6  | 20.8 | 54.8  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6   | 5.4  | 5.1  | 5.1   | 4.6  | * 5.4 | 5.4  | * 5.1 |      |      |      |      |
| Max Green Setting (Gmax), s  | 10.0  | 65.0 | 34.0 | 37.0  | 16.0 | * 56  | 23.0 | * 34  |      |      |      |      |
| Max Q Clear Time (g_c+14), s | 14.7  | 48.2 | 27.8 | 39.0  | 2.5  | 31.3  | 15.3 | 14.8  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0   | 3.5  | 0.6  | 0.0   | 0.0  | 4.1   | 0.2  | 0.7   |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 66.0 |
| HCM 6th LOS        | E    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
 216: SR 3 & Imperial Way

04/29/2024



| Movement                      | EBL   | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT   | SBR  |
|-------------------------------|-------|------|------|------|------|------|------|------|------|------|-------|------|
| Lane Configurations           |       | ↕    | ↗    |      | ↕    |      | ↖    | ↑    | ↖    | ↖    | ↑     | ↗    |
| Traffic Volume (veh/h)        | 229   | 1    | 118  | 9    | 1    | 16   | 22   | 404  | 6    | 12   | 671   | 3    |
| Future Volume (veh/h)         | 229   | 1    | 118  | 9    | 1    | 16   | 22   | 404  | 6    | 12   | 671   | 3    |
| Initial Q (Qb), veh           | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Ped-Bike Adj(A_pbT)           | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |       | 1.00 |
| Parking Bus, Adj              | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach         |       | No   |      |      | No   |      |      | No   |      |      | No    |      |
| Adj Sat Flow, veh/h/ln        | 1572  | 1572 | 1572 | 1560 | 1560 | 1560 | 1510 | 1510 | 1510 | 1560 | 1560  | 1560 |
| Adj Flow Rate, veh/h          | 290   | 1    | 149  | 11   | 1    | 20   | 28   | 511  | 8    | 15   | 849   | 4    |
| Peak Hour Factor              | 0.79  | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79  | 0.79 |
| Percent Heavy Veh, %          | 3     | 3    | 3    | 4    | 4    | 4    | 8    | 8    | 8    | 4    | 4     | 4    |
| Cap, veh/h                    | 265   | 1    | 426  | 57   | 24   | 40   | 41   | 732  | 620  | 26   | 739   | 626  |
| Arrive On Green               | 0.32  | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.03 | 0.48 | 0.48 | 0.02 | 0.47  | 0.47 |
| Sat Flow, veh/h               | 564   | 2    | 1332 | 0    | 74   | 123  | 1438 | 1510 | 1279 | 1485 | 1560  | 1322 |
| Grp Volume(v), veh/h          | 291   | 0    | 149  | 32   | 0    | 0    | 28   | 511  | 8    | 15   | 849   | 4    |
| Grp Sat Flow(s),veh/h/ln      | 566   | 0    | 1332 | 198  | 0    | 0    | 1438 | 1510 | 1279 | 1485 | 1560  | 1322 |
| Q Serve(g_s), s               | 0.0   | 0.0  | 7.2  | 0.0  | 0.0  | 0.0  | 1.6  | 22.3 | 0.3  | 0.8  | 40.0  | 0.1  |
| Cycle Q Clear(g_c), s         | 27.0  | 0.0  | 7.2  | 27.0 | 0.0  | 0.0  | 1.6  | 22.3 | 0.3  | 0.8  | 40.0  | 0.1  |
| Prop In Lane                  | 1.00  |      | 1.00 | 0.34 |      | 0.62 | 1.00 |      | 1.00 | 1.00 |       | 1.00 |
| Lane Grp Cap(c), veh/h        | 266   | 0    | 426  | 121  | 0    | 0    | 41   | 732  | 620  | 26   | 739   | 626  |
| V/C Ratio(X)                  | 1.09  | 0.00 | 0.35 | 0.27 | 0.00 | 0.00 | 0.68 | 0.70 | 0.01 | 0.57 | 1.15  | 0.01 |
| Avail Cap(c_a), veh/h         | 266   | 0    | 426  | 121  | 0    | 0    | 136  | 732  | 620  | 141  | 739   | 626  |
| 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  | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 |
| Uniform Delay (d), s/veh      | 33.0  | 0.0  | 22.0 | 23.2 | 0.0  | 0.0  | 40.6 | 16.9 | 11.3 | 41.1 | 22.2  | 11.7 |
| Incr Delay (d2), s/veh        | 82.5  | 0.0  | 0.5  | 1.2  | 0.0  | 0.0  | 18.1 | 2.9  | 0.0  | 18.4 | 82.2  | 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(95%),veh/ft      | 8.1   | 0.0  | 4.1  | 0.9  | 0.0  | 0.0  | 1.4  | 12.4 | 0.1  | 0.8  | 43.7  | 0.1  |
| Unsig. Movement Delay, s/veh  |       |      |      |      |      |      |      |      |      |      |       |      |
| LnGrp Delay(d),s/veh          | 115.5 | 0.0  | 22.5 | 24.3 | 0.0  | 0.0  | 58.8 | 19.8 | 11.3 | 59.5 | 104.4 | 11.7 |
| LnGrp LOS                     | F     | A    | C    | C    | A    | A    | E    | B    | B    | E    | F     | B    |
| Approach Vol, veh/h           |       | 440  |      |      | 32   |      |      | 547  |      |      | 868   |      |
| Approach Delay, s/veh         |       | 84.0 |      |      | 24.3 |      |      | 21.7 |      |      | 103.2 |      |
| Approach LOS                  |       | F    |      |      | C    |      |      | C    |      |      | F     |      |
| Timer - Assigned Phs          | 1     | 2    |      | 4    | 5    | 6    |      | 8    |      |      |       |      |
| Phs Duration (G+Y+Rc), s      | 6.0   | 46.9 |      | 31.5 | 6.9  | 46.0 |      | 31.5 |      |      |       |      |
| Change Period (Y+Rc), s       | 4.5   | 6.0  |      | 4.5  | 4.5  | 6.0  |      | 4.5  |      |      |       |      |
| Max Green Setting (Gmax), s   | 40.0  | 40.0 |      | 27.0 | 8.0  | 40.0 |      | 27.0 |      |      |       |      |
| Max Q Clear Time (g_c+1/2), s | 24.3  | 24.3 |      | 29.0 | 3.6  | 42.0 |      | 29.0 |      |      |       |      |
| Green Ext Time (p_c), s       | 0.0   | 3.0  |      | 0.0  | 0.0  | 0.0  |      | 0.0  |      |      |       |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 73.7 |
| HCM 6th LOS        | E    |

# HCM 6th Signalized Intersection Summary

307: Naval St & 15th St

04/29/2024



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)       | 10   | 115  | 33   | 7    | 146  | 14   | 79   | 25   | 15   | 8    | 20   | 6    |
| Future Volume (veh/h)        | 10   | 115  | 33   | 7    | 146  | 14   | 79   | 25   | 15   | 8    | 20   | 6    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 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       | 1597 | 1597 | 1597 | 1585 | 1585 | 1585 | 1585 | 1585 | 1585 | 1535 | 1535 | 1535 |
| Adj Flow Rate, veh/h         | 11   | 124  | 35   | 8    | 157  | 15   | 85   | 27   | 16   | 9    | 22   | 6    |
| 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, %         | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    | 2    | 6    | 6    | 6    |
| Cap, veh/h                   | 213  | 311  | 84   | 205  | 372  | 35   | 560  | 147  | 56   | 282  | 338  | 75   |
| Arrive On Green              | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| Sat Flow, veh/h              | 51   | 1160 | 314  | 34   | 1388 | 129  | 785  | 466  | 179  | 157  | 1071 | 238  |
| Grp Volume(v), veh/h         | 170  | 0    | 0    | 180  | 0    | 0    | 128  | 0    | 0    | 37   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1525 | 0    | 0    | 1551 | 0    | 0    | 1430 | 0    | 0    | 1466 | 0    | 0    |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 1.7  | 0.0  | 0.0  | 1.8  | 0.0  | 0.0  | 1.2  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  |
| Prop In Lane                 | 0.06 |      | 0.21 | 0.04 |      | 0.08 | 0.66 |      | 0.12 | 0.24 |      | 0.16 |
| Lane Grp Cap(c), veh/h       | 608  | 0    | 0    | 611  | 0    | 0    | 763  | 0    | 0    | 696  | 0    | 0    |
| V/C Ratio(X)                 | 0.28 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 2640 | 0    | 0    | 2684 | 0    | 0    | 2591 | 0    | 0    | 2557 | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 5.8  | 0.0  | 0.0  | 5.8  | 0.0  | 0.0  | 4.9  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.2  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(95%),veh/lr0.5  | 0.0  | 0.0  | 0.5  | 0.0  | 0.0  | 0.0  | 0.3  | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 6.0  | 0.0  | 0.0  | 6.1  | 0.0  | 0.0  | 5.0  | 0.0  | 0.0  | 4.6  | 0.0  | 0.0  |
| LnGrp LOS                    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    | A    |
| Approach Vol, veh/h          |      | 170  |      |      | 180  |      |      | 128  |      |      | 37   |      |
| Approach Delay, s/veh        |      | 6.0  |      |      | 6.1  |      |      | 5.0  |      |      | 4.6  |      |
| Approach LOS                 |      | A    |      |      | A    |      |      | A    |      |      | A    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     |      | 10.1 |      | 9.1  |      | 10.1 |      | 9.1  |      |      |      |      |
| Change Period (Y+Rc), s      |      | 4.0  |      | 4.0  |      | 4.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  |      | 31.0 |      | 31.0 |      | 31.0 |      | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s |      | 3.2  |      | 3.7  |      | 2.3  |      | 3.8  |      |      |      |      |
| Green Ext Time (p_c), s      |      | 0.7  |      | 1.0  |      | 0.1  |      | 1.1  |      |      |      |      |

## Intersection Summary

|                    |     |
|--------------------|-----|
| HCM 6th Ctrl Delay | 5.7 |
| HCM 6th LOS        | A   |

# MOVEMENT SUMMARY

 Site: 328 [SR 3 & Ariport Rd (Site Folder: 2023 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
|------------------------------|------|-----------|-----------------------|-----|-----------------------|-----|-----------|-------------|------------------|-------------------|----------------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows          |     | Arrival Flows         |     | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |                | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ]<br>veh/h | %   | [ Total HV ]<br>veh/h | %   |           |             |                  | [ Veh. ]<br>veh   | [ Dist ]<br>ft |           |                |                     |             |
| South: SR 3                  |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 8                            | T1   | All MCs   | 781                   | 4.0 | 781                   | 4.0 | 0.574     | 5.0         | LOS A            | 4.2               | 109.6          | 0.10      | 0.42           | 0.10                | 38.6        |
| 18                           | R2   | All MCs   | 19                    | 4.0 | 19                    | 4.0 | 0.574     | 4.8         | LOS A            | 4.2               | 109.6          | 0.10      | 0.42           | 0.10                | 30.0        |
| Approach                     |      |           | 800                   | 4.0 | 800                   | 4.0 | 0.574     | 5.0         | LOS A            | 4.2               | 109.6          | 0.10      | 0.42           | 0.10                | 38.4        |
| East: Ariport Rd             |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 1                            | L2   | All MCs   | 33                    | 8.0 | 33                    | 8.0 | 0.086     | 9.1         | LOS A            | 0.4               | 10.6           | 0.59      | 0.64           | 0.59                | 27.1        |
| 16                           | R2   | All MCs   | 37                    | 8.0 | 37                    | 8.0 | 0.086     | 5.2         | LOS A            | 0.4               | 10.6           | 0.59      | 0.64           | 0.59                | 27.4        |
| Approach                     |      |           | 70                    | 8.0 | 70                    | 8.0 | 0.086     | 7.0         | LOS A            | 0.4               | 10.6           | 0.59      | 0.64           | 0.59                | 27.2        |
| North: SR 3                  |      |           |                       |     |                       |     |           |             |                  |                   |                |           |                |                     |             |
| 7                            | L2   | All MCs   | 10                    | 5.0 | 10                    | 5.0 | 0.623     | 11.0        | LOS B            | 5.3               | 138.1          | 0.23      | 0.42           | 0.23                | 29.5        |
| 4                            | T1   | All MCs   | 835                   | 5.0 | 835                   | 5.0 | 0.623     | 5.1         | LOS A            | 5.3               | 138.1          | 0.23      | 0.42           | 0.23                | 38.1        |
| Approach                     |      |           | 845                   | 5.0 | 845                   | 5.0 | 0.623     | 5.2         | LOS A            | 5.3               | 138.1          | 0.23      | 0.42           | 0.23                | 37.9        |
| All Vehicles                 |      |           | 1715                  | 4.7 | 1715                  | 4.7 | 0.623     | 5.2         | LOS A            | 5.3               | 138.1          | 0.19      | 0.43           | 0.19                | 37.5        |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

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

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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.

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