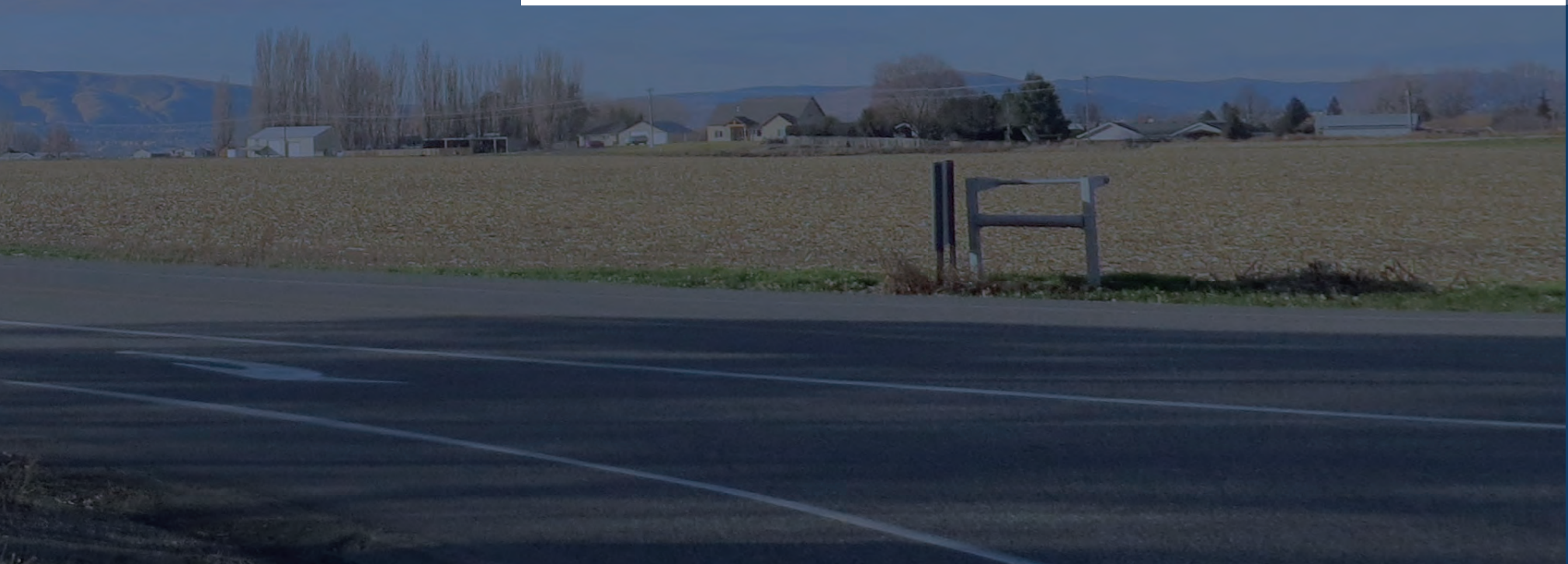
CITY OF PASCO

# Transportation System Master Plan **Appendices**

JUNE 2022

City of Pasco Washington

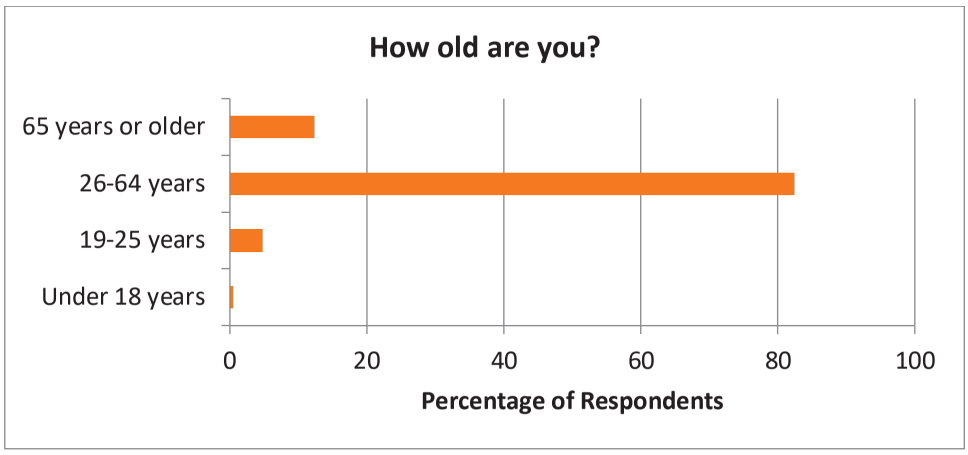
# Appendix A

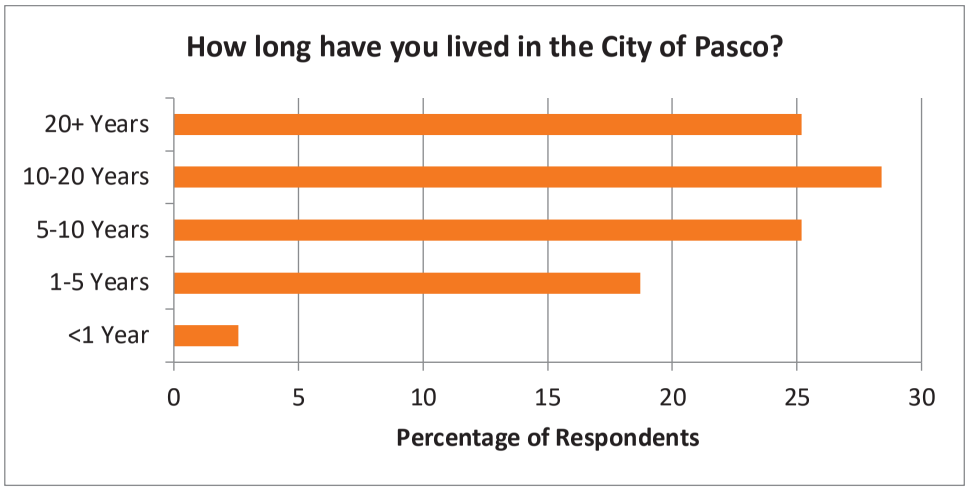


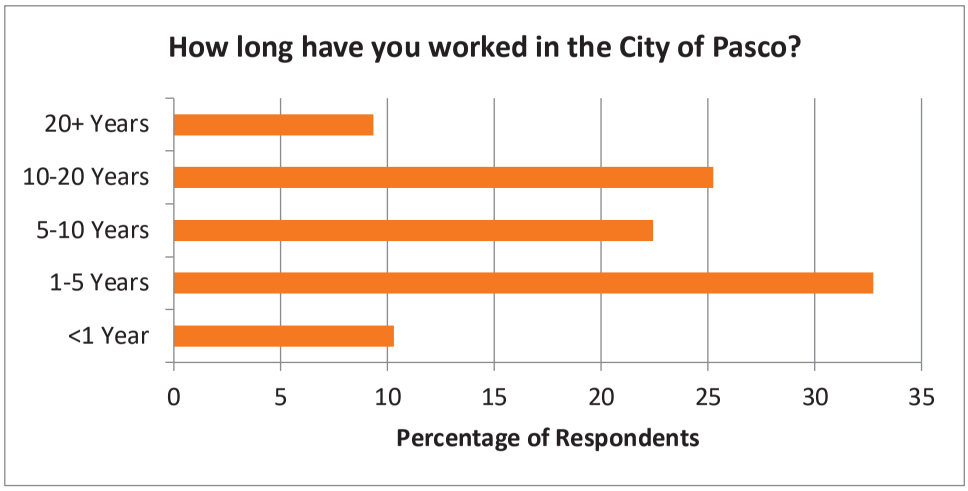
These are the results of the online survey in June and July of 2020. The Pasco community provided a total of 225 responses and we summarized the information below.

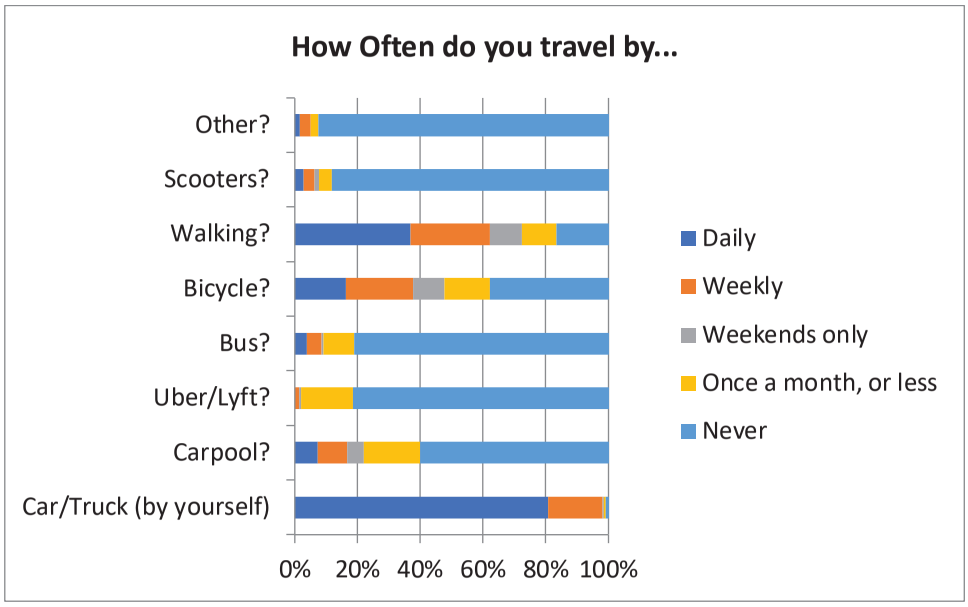
## THE PASCO COMMUNITY

- 74% of respondents live in Pasco
- 54% of respondents work in Pasco
- 10% of respondents attend school in Pasco



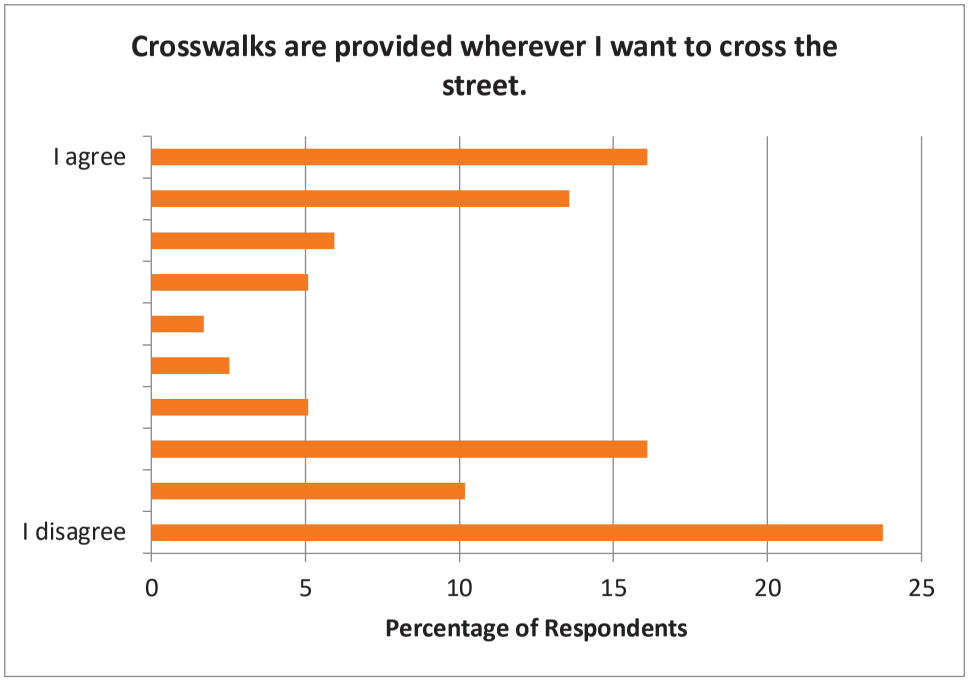



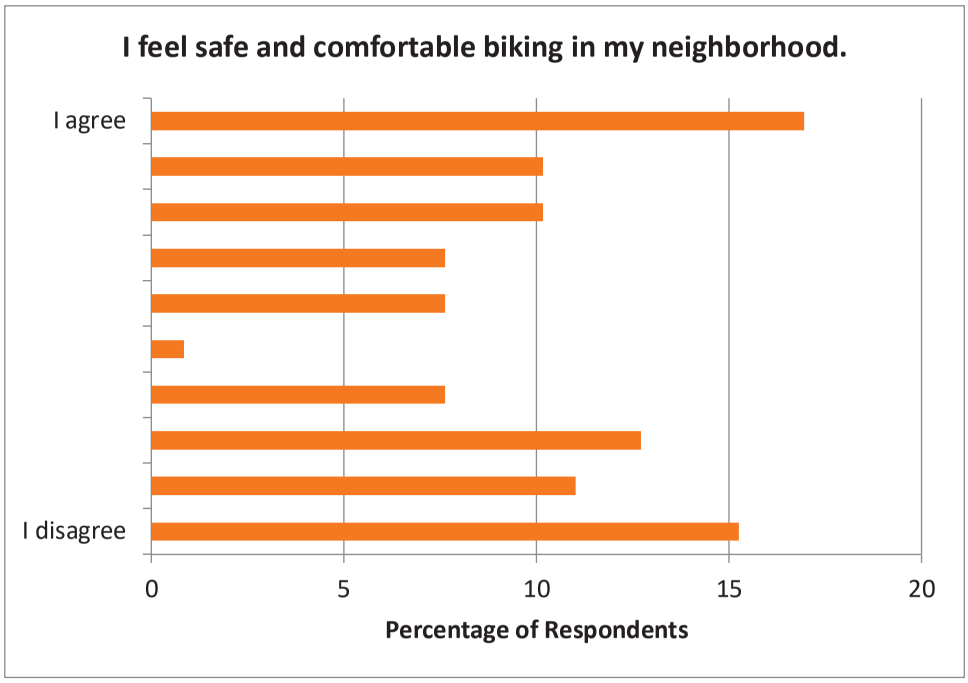

How long have you worked in the City of Pasco?
20+ Years
10-20 Years
5-10 Years
1-5 Years
<1 Year
0
5
10
15
20
25
30
35
Percentage of Respondents


How Often do you travel by...
Other?
Scooters?
Walking?
Bicycle?
Bus?
Uber/Lyft?
Carpool?
Car/Truck (by yourself)
0%
20%
40%
60%
80%
100%
Daily
Weekly
Weekends only
Once a month, or less
Never

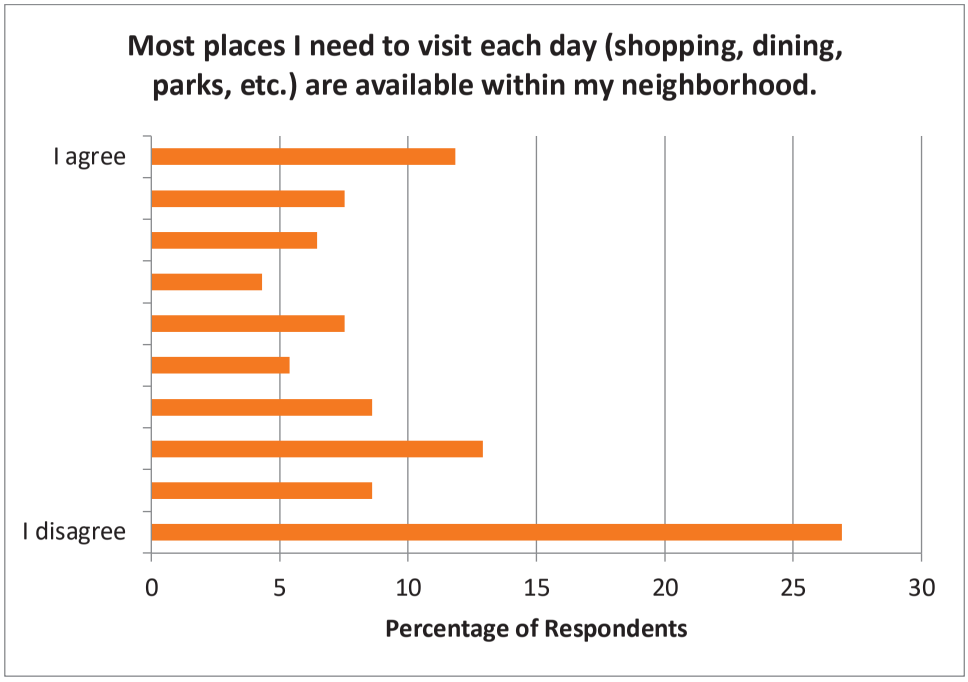
## WALKING

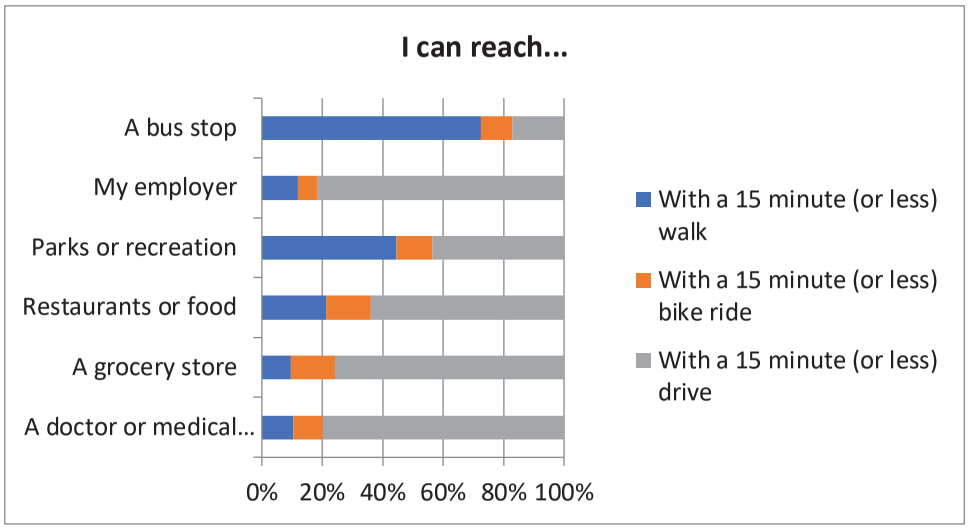

Where residents of Pasco note issues with sidewalks:

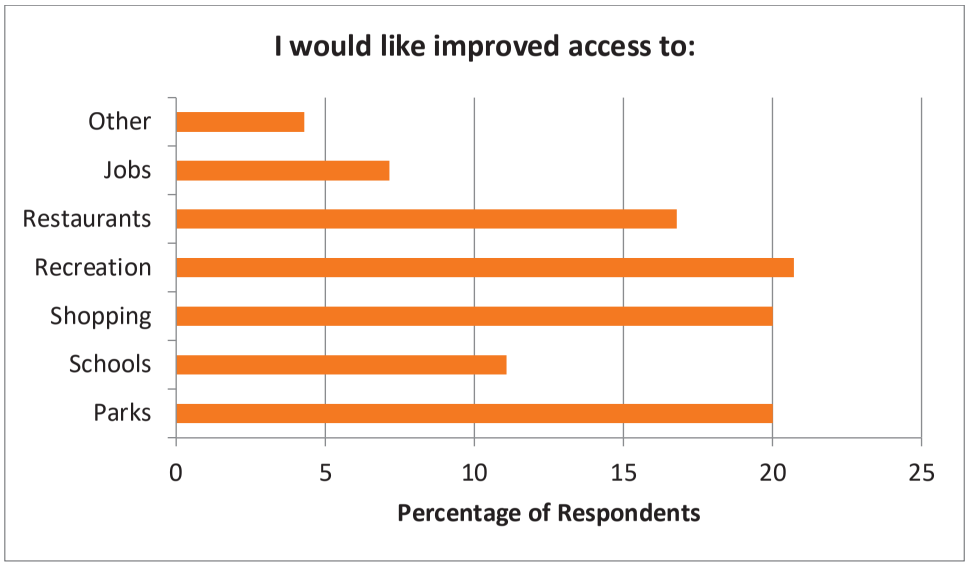




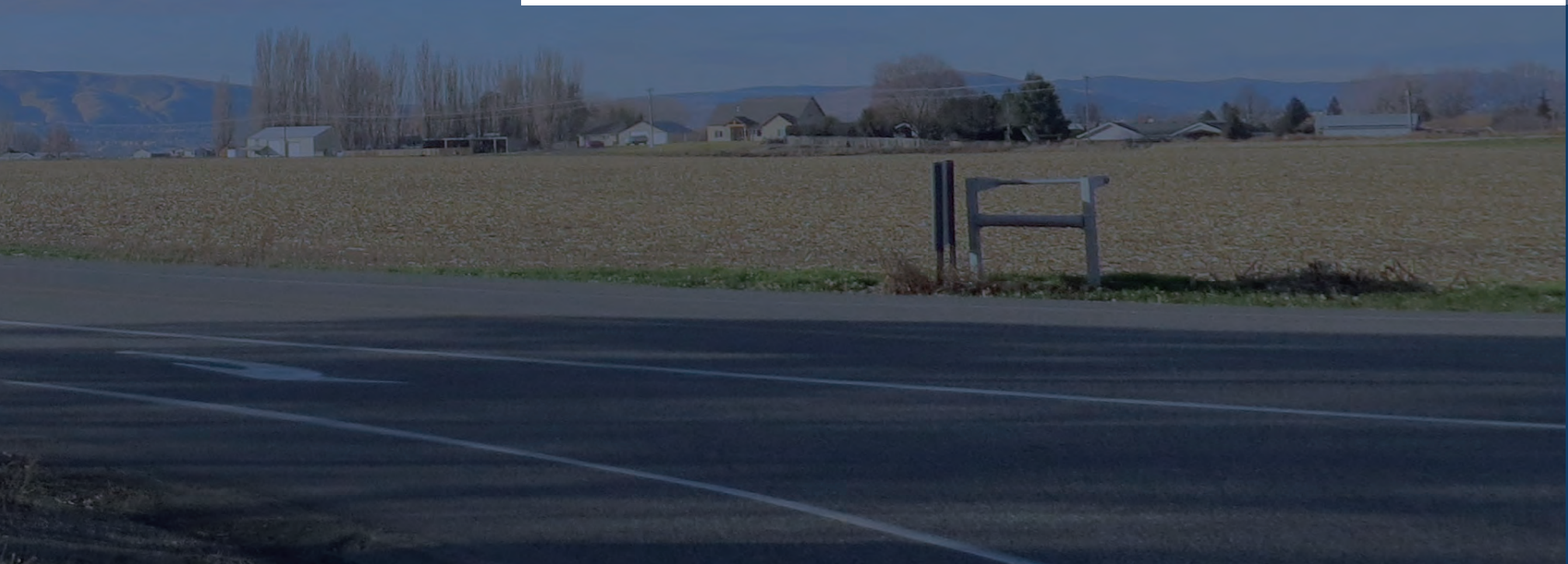

## Transportation System Accessibility




I can reach...
A bus stop
My employer
Parks or recreation
Restaurants or food
A grocery store
A doctor or medical...
0%
20%
40%
60%
80%
100%
With a 15 minute (or less) walk
With a 15 minute (or less) bike ride
With a 15 minute (or less) drive


I would like improved access to:
Other
Jobs
Restaurants
Recreation
Shopping
Schools
Parks
0
5
10
15
20
25
Percentage of Respondents

# Appendix B



DKS 720 SW WASHINGTON STREET, SUITE 500, PORTLAND, OR 97205 • 503.243.3500 • DKSASSOCIATES.COM

# SYSTEM INVENTORY AND EXISTING PERFORMANCE

DATE: May 18, 2020

TO: Dan Ford, Jacob Gonzalez | City of Paso

FROM: Rochelle Starrett, Carl Springer, Aaron Berger | DKS Associates

SUBJECT: Pasco Transportation System Master Plan
Task 3: System Inventory and Existing Conditions

Project #19209-000

## BACKGROUND

The City of Pasco is developing its first transportation system master plan (TSMP) which includes a baseline for measuring transportation system conditions. This memorandum provides an overview of the transportation system performance which includes a detailed review of operating characteristics for pedestrians, bicyclists, transit riders, and drivers. This analysis focuses on arterial and collector roadways within Pasco's Urban Growth Area (UGA).

Study intersections were identified in coordination with the City of Pasco and are listed below and mapped in Figure 1. Note that only some locations were analyzed for both weekday AM and PM peak period conditions.

### AM/PM Study Intersection Locations

1. Broadmoor Blvd & I-182 WB Ramps
2. Broadmoor Blvd & I-182 EB Ramps
3. Road 68 & I-182 WB Ramps
4. Road 68 & I-182 EB Ramps
5. US 395/Morasch Ln & Argent Rd
6. US 395 SB Ramps & Court St
7. US 395 NB Ramps & Court St
8. US 395 NB Ramps & Sylvester St
9. 20th Ave & I-182 WB Ramps
10. 20th Ave & I-182 EB Ramps
11. 4th Ave & I-182 WB Ramps
12. 4th Ave & I-182 EB Ramps
13. Foster Wells Rd & US 395
14. US 395 SB Ramps/Rainier Ave & Kartchner St
15. US 395 NB Ramps/Commercial Ave & Kartchner St
16. Hwy 12 SB Ramps & Heritage Blvd/Pasco Kahlotus Rd
17. Hwy 12 NB Ramps & Heritage Blvd/Pasco Kahlotus Rd
18. Hwy 12 & A St
19. Road 68 & Burden

**PM Only Study Intersection Locations**

20. Broadmoor Blvd & Burns Rd
21. Broadmoor Blvd & Sandifur Pkwy
22. Broadmoor Blvd & Chapel Hill Blvd
23. Broadmoor Blvd/Road 100 & Argent Rd
24. Road 84 & Argent Rd
25. Road 84 & Court St
26. Road 68 & Powerline Rd
27. Road 68 & Sandifur Pkwy
28. Road 68 & Chapel Hill Blvd
29. Road 68 & Argent Rd
30. Road 68 & Court St
31. Road 60 & Court St
32. Madison Ave & Burden Blvd
33. Road 44 & Argent Rd
34. 20th Ave & Argent Rd
35. 20th Ave & Court St
36. 20th Ave & Sylvester St
37. 20th Ave & Lewis St
38. 10th Ave & Sylvester St
39. 10th Ave & Lewis St
40. 10th Ave & A St
41. 10th Ave & Ainsworth St
42. 4th Ave & Court St
43. 4th Ave & Sylvester St
44. 4th Ave & Lewis St
45. 4th Ave & A St
46. 4th Ave & Ainsworth St
47. Oregon Ave & Lewis St
48. Oregon Ave & A St
49. Oregon Ave & Ainsworth St
50. Heritage Blvd & Lewis St/Avery Ave
51. Heritage Blvd & A St
52. Cedar Ave & Lewis St

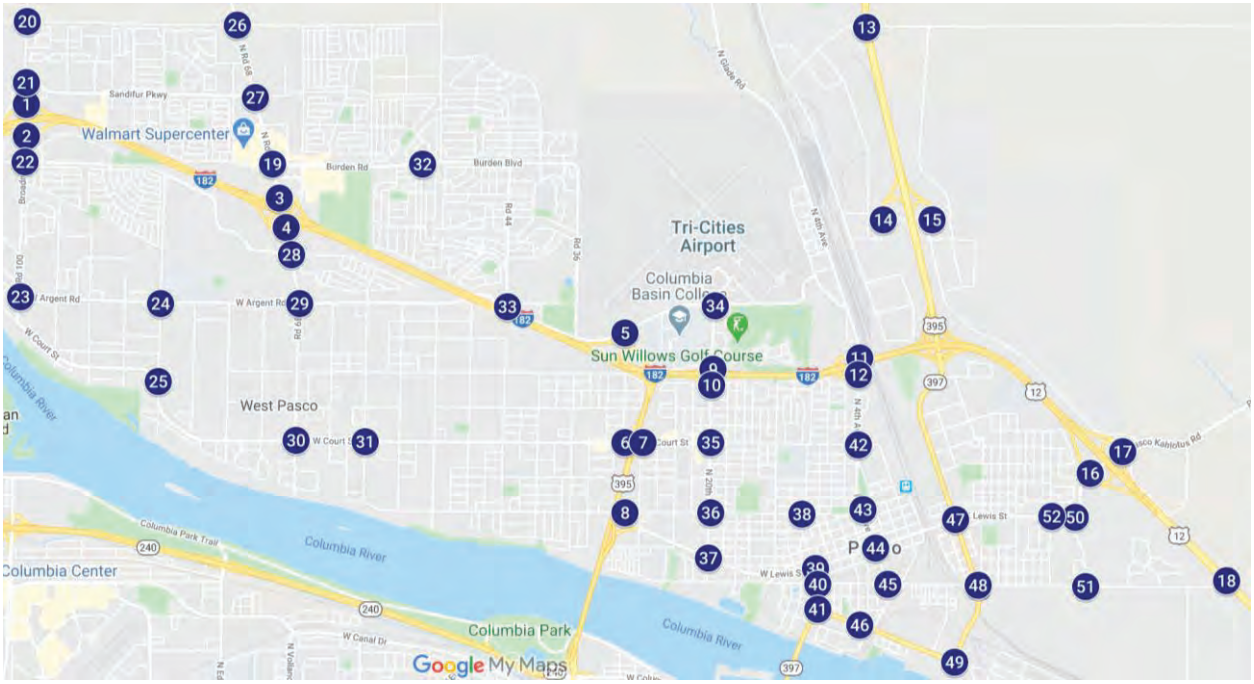



**FIGURE 1.** PASCO TSMP STUDY INTERSECTIONS

## ANALYSIS METHODS USED

The system performance evaluation applied several technical methods consistent with transportation planning practices. The following section describes the methods used and

they are consistent with the Street Light Analysis Approach Memo, the Traffic Forecast Methodology Memorandum, national guidance, and best practice.

## SAFETY ANALYSIS

Crash data for the last five years (2014-2018) was obtained from WSDOT to analyze crash trends within the City of Pasco[1]. This data was used to flag typical crash patterns (e.g. crash type, severity, underlying factors) and screen the transportation system for corridors and intersections with high crash rates. Crashes involving pedestrians or bicyclists were also flagged for separate evaluation. Results of this analysis are documented in the Traffic Safety Assessment, provided in the appendix.

## SYSTEM CONNECTIVITY ANALYSIS

Pasco's existing road network and functional classification was reviewed to identify transportation barriers and other missing elements of Pasco's existing transportation system. Pasco does not have spacing standards for different street types, so system connectivity was assessed using a 1-mile spacing standard for arterial roadways and a ½-mile spacing standard for collectors. Connections for both pedestrians and bicyclists should be provided more frequently to promote walkability and bikeability. Bicycle and pedestrian connectivity gaps were identified when existing block lengths along arterial or collector roadways exceeded 500 feet. The gap analysis was used to identify corridors and areas that lack critical bicycle or pedestrian connections.

## STREET LIGHT ANALYSIS

Street Light data uses GPS traces from personal devices (*e.g.* cell phones) or other location-based services to infer travel patterns. The personal identity of the user is kept anonymous at all times. The data is used as a sample to represent patterns and trends for all types of travel around the City. Additional details on the Street Light analysis are provided in the Street Light Analysis Approach Memo.

Each Street Light analysis was set up to consider an entire year of available data (typically 2019) which can provide a clearer picture of typical travel patterns. Trip metrics (*e.g.* trip length or distance) and traveler attributes (*e.g.* trip purpose or income) were also evaluated in conjunction with different analyses to provide additional insights to travel behavior. Existing data, such as freight volumes from WSDOT, was also used to calibrate the estimated Street Light freight volumes.

[1] Crash data provided from the 2020 City Safety Program: https://www.wsdot.wa.gov/LocalPrograms/Traffic/CitySafetyProgram

## OPERATIONS ANALYSIS

Traffic operations at study intersections were reported using Synchro 10 and HCM 6th Edition Methodology based on recent traffic counts and new counts collected December 2019 and January 2020. Since traffic counts are typically lower during the winter, these counts were factored to represent average traffic conditions in Pasco. Specific methods used for seasonal factoring and adjusting traffic counts are summarized in the Traffic Forecast Methodology Memorandum. Intersection geometry and traffic control types were collected using Google Maps/Streetview and field verified, if necessary. Traffic signal timings were provided by both the City of Pasco and WSDOT.

Signalized intersection v/c ratios were post-processed at signalized intersections based on HCM 6th Edition Chapter 19[2]. If HCM 6th Edition results could not be reported for signals, v/c ratios were reported using HCM 2000. Mainline through movement v/c ratios were post-processed at unsignalized intersections consistent with the Highway Capacity Manual[3].

Planning mobility targets for all study intersections utilize a LOS D standard for all arterial and collector roadways, consistent with state transportation plans and adopted regional standards[4].

# EXISTING TRANSPORTATION CONDITIONS

## EXISTING TRANSPORTATION SYSTEM CONNECTIVITY

### ROADWAY SYSTEM CONNECTIVITY

Pasco's existing roadway network is arranged largely on a grid system which establishes a system of arterial and collector streets. Within Pasco's older downtown core (generally between US 395 and Oregon Avenue, south of I-182), the existing functional classification system establishes a traditional urban arterial and collector street system that adheres to the recommended spacing standards, seen below in Figure 2. Existing arterials in the downtown core also distribute traffic to and from existing interchanges along US 395 and I-182.

The roadway system in areas of Pasco outside the downtown core have more limited opportunities for developing an arterial and collector street system. The existing road network is constrained by post-1980s suburban-style residential developments (including new subdivisions north of I-182 and developments that remain within Franklin County south

[2] TRB. *Highway Capacity Manual, 6th Ed., Ch. 19 Signalized Intersections.* 2016.
[3] TRB. *Highway Capacity Manual, 6th Ed., Ch. 20 Two-Way Stop-Controlled Intersections.* 2016.
[4] City of Pasco. 2018 to 2038 Comprehensive Plan Goals and Policies. 2020.

of I-182). The recent development in Pasco have a markedly different development style, seen below in Figure 2, which includes longer block lengths and limited access points. Limited crossing opportunities for I-182, the Pasco airport, and other geographical features (*e.g.* the Franklin County Irrigation Canal) also constrain the existing roadway network within Pasco.

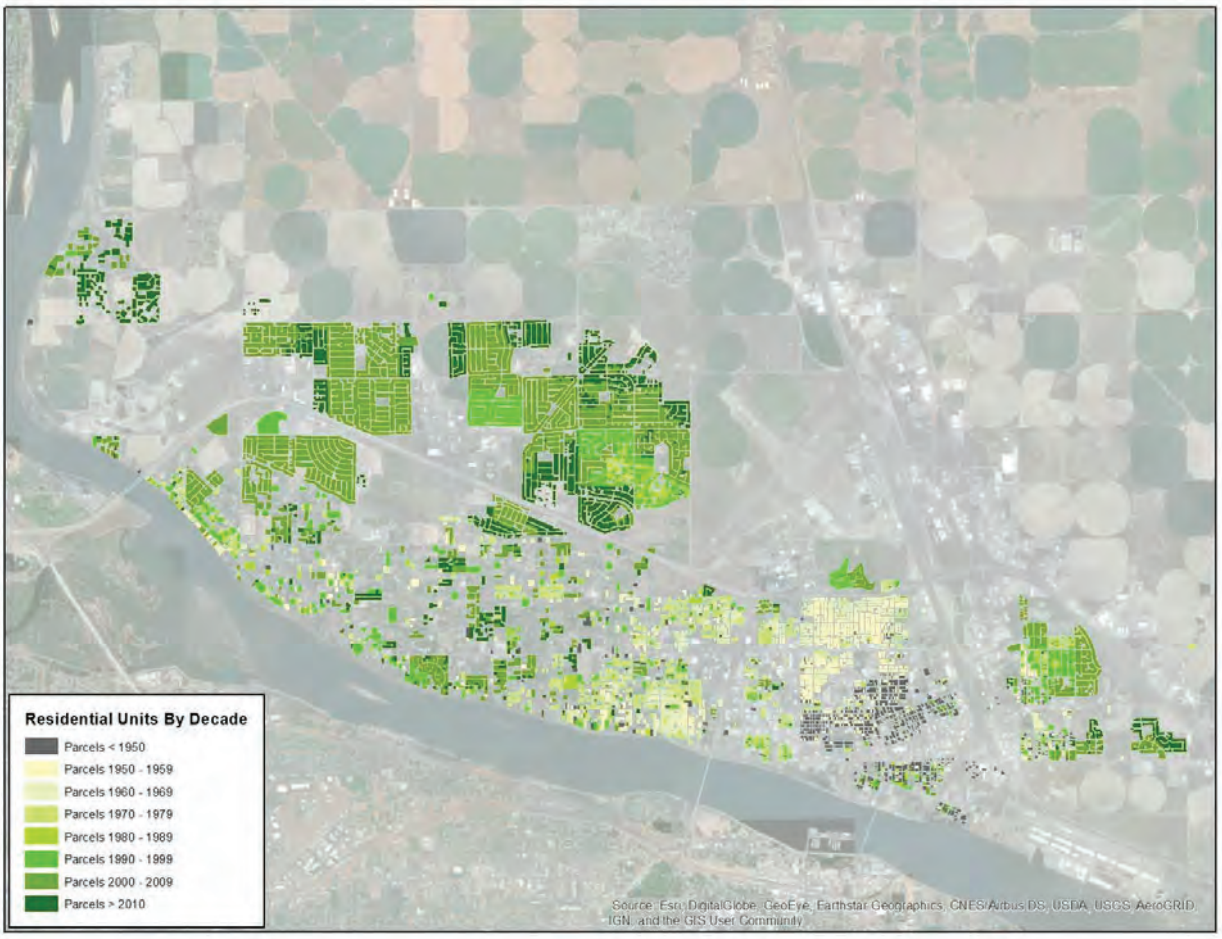



**FIGURE 2. LOCATION OF RESIDENTIAL UNITS CONSTRUCTED EACH DECADE IN CITY OF PASCO**

The constraints to circulation and access affect the City's ability to provide convenient and safe services for all travelers. Through this plan update process, there are opportunities to address these system weaknesses. The first is through re-classifying roadways to better represent that scale and character of facilities for a given area. As new streets are built and existing streets are upgraded to match revised standards, those improvements will better align with what is important for residents and businesses alike. However, the long blocks and sealed off neighborhoods that are borderd by the arterial and collector network will remain, particularly in recently developed areas and across I-182. Housing construction in Pasco has built approximately 11,000 units over the past 20 years (see Figure 3). As the

City continues to grow, it will be important to consider how system connectivity could be enhanced, especially in the new neighborhoods, to achieve the City's community values.

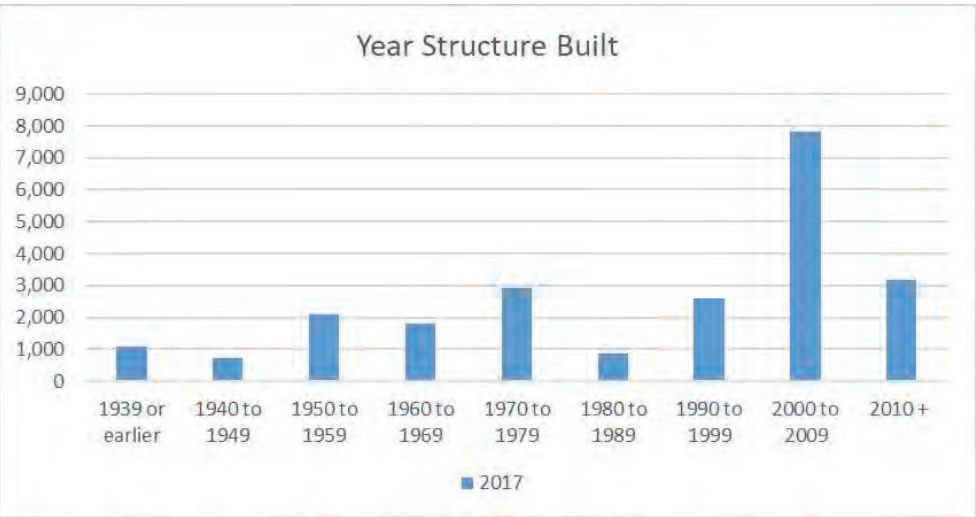



**FIGURE 3. TOTAL NUMBER OF RESIDENTIAL UNITS CONSTRUCTED IN CITY OF PASCO BY DECADE**

## MULTIMODAL SYSTEM CONNECTIVITY

The same development patterns also limit connectivity for pedestrians and bicyclists who depend on more frequent system spacing. Key facility gaps were identified when the distance between local streets or existing trails exceeded 500' on arterial and collector roadways. Since these gaps occur more frequently than for the arterial and collector street system, the gap analysis was used to flag arterial and collector segments with several facility gaps. The following arterial and collector corridors (adjacent to existing developments) were identified as segments with poor pedestrian or bicyclist accessibility:

- Court Street (Road 44 to Road 108)
- Wernett Road (Road 48 to Road 76)
- Argent Road (Road 48 to Road 100)
- Chapel Hill Boulevard (Road 68 to Road 100)
- Burden Boulevard (Road 36 to Road 60)
- Sandifur Parkway (Porto Lane to Road 90)
- Road 44 (Laredo Drive to Porto Lane)
- Burns Road (Road 68 to Road 100; Dent Road to Kohler Road)
- Clark Road (Road 36 to Lentz Road/Janet Street)
- Road 100/I-182 overpass
- Road 68/I-182 overpass

Areas within Franklin County, south of I-182, also have limited local street connectivity which further limits the existing multimodal transportation system in these areas. Figure 4, below, shows identified corridors and areas with limited multimodal access.

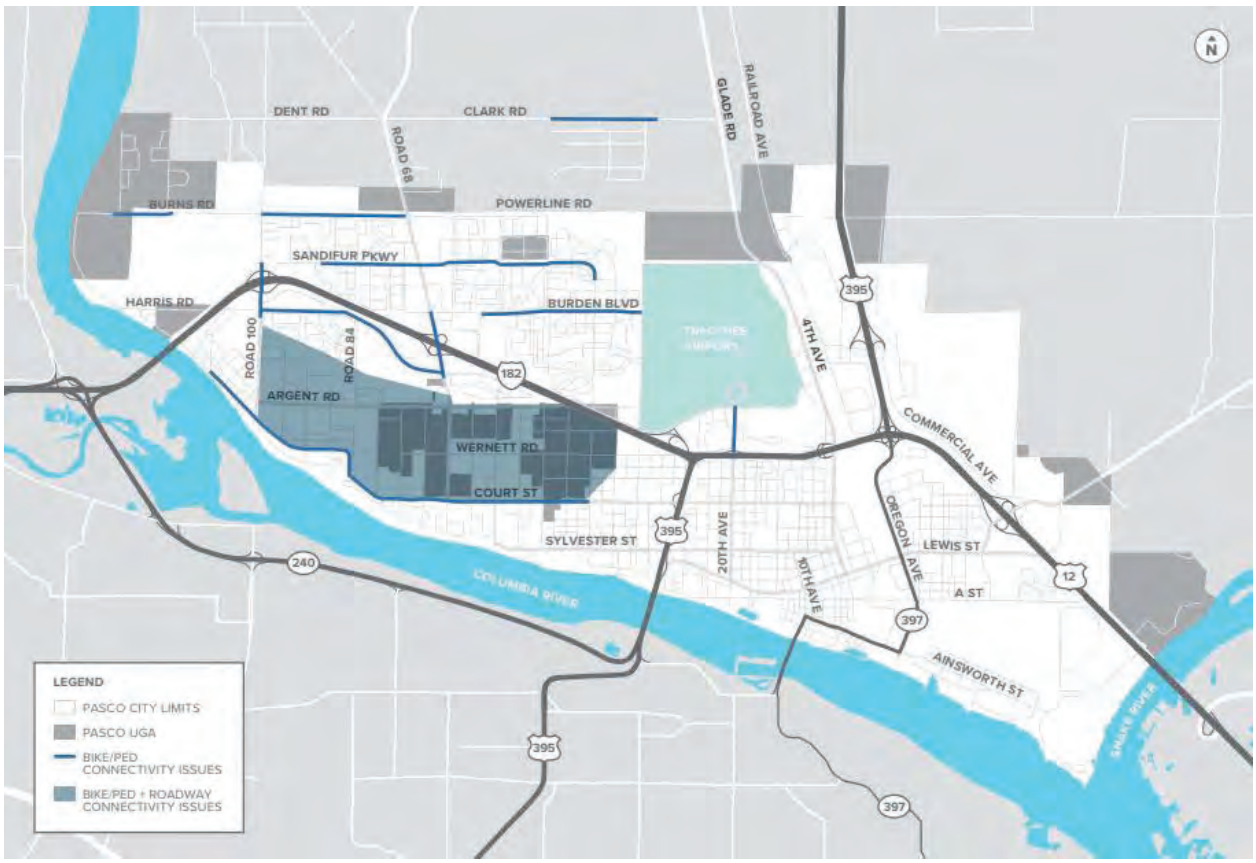



**FIGURE 4. MULTIMODAL SYSTEM CONNECTIVITY CONSTRAINTS**

The multimodal system connectivity assessment did not consider existing crossing opportunities for arterial or collector roadways which can further limit the connectivity of a multimodal transportation system. Limited crossing opportunities exist on 20th Avenue between Argent Road and I-182, which divides existing student housing from the Columbia Basin Community College Campus. Other arterial and collector roadways within Pasco are also expected to provide limited crossing opportunities for multimodal system users.

## EXISTING TRAVEL PATTERNS (PER STREET LIGHT DATA FINDINGS)

### BRIDGE TRAVEL

Travel on the Columbia and Snake River Bridges between Pasco and the Tri-Cities is tied to the geographic location of each regional trip's origin or destination. The US 12 Bridge serves travel between Pasco, the eastern Tri-Cities, and other destinations to the east. The Blue Bridge/US 395 Bridge and WA-397 Bridge primarily serve travel between Pasco (especially the largely residential areas near these bridges), Kennewick, and eastern Richland. However, the Blue Bridge/US 395 Bridge also serves regional traffic between US 395 north of Pasco and I-82 south of Pasco which accounts for 4% of this bridge's AADT. The I-182 Bridges serve travel between Pasco, Hanford, Richland, western Kennewick, and West

Richland. Within Pasco, the I-182 Bridges serve residential zones within western Pasco and the Road 68 commercial core. The I-182 Bridges also serve regional traffic to I-82 west of the Tri-Cities which accounts for 2% of these bridges' AADT.

Traffic within the Tri-Cities region primarily uses the I-182 Bridges, the Blue Bridge/US 395 Bridge, and the WA-397 Bridge. The great majority of trips on all three Columbia River bridges are less than 30 miles in length, 65% of trips on the I-182 Bridges, 78% of trips on the Blue Bridge/US 395 Bridge, and 75% of trips on the WA-397 Bridge. Conversely, the vehicle trips are longest on the US 12 Bridge where only 38% of trips are less than 30 miles and 9% of trips are longer than 100 miles. The distribution of trip lengths for each bridge is below in Figure 5.

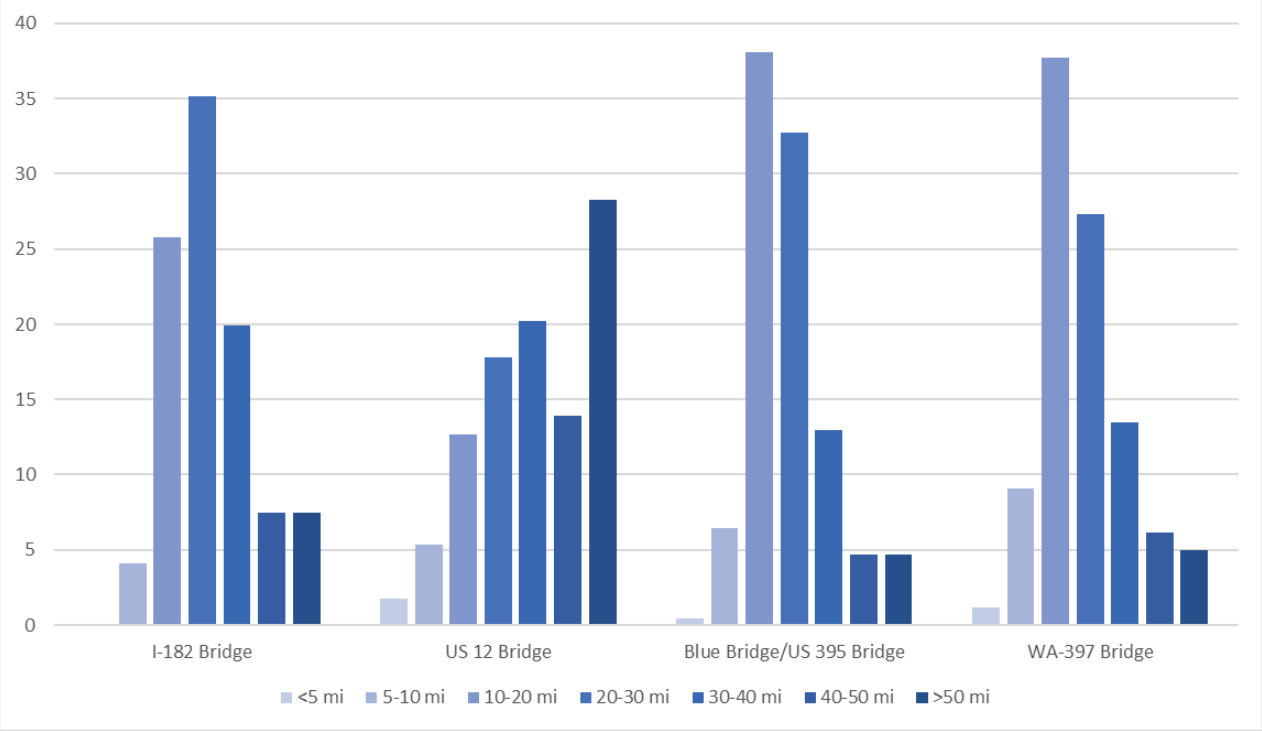



**FIGURE 5. VEHICLE TRIPS LENGTH CROSSING RIVER BRIDGES (% of Total Bridge Trips, StreetLight Data)**

## FREIGHT TRAVEL

Freight transportation plays a significant role in Pasco's economy and serves trips between the Columbia River Basin agricultural region and other major cities within the Pacific Northwest, including Seattle, Portland, Spokane, Moses Lake, and Walla Walla. Freight is concentrated on Pasco's highway system which is primarily accessed at the following interchanges/intersections:

- US 395/Kartchner Street interchange

- US 12/Lewis Street interchange
- US 12/Sacajawea Park intersection
- US 395/Oregon Avenue interchange

Freight traffic on local roadways is concentrated in eastern Pasco, adjacent to major industrial centers, including Kartchner Street, Ainsworth Street, Oregon Avenue, Heritage Boulevard, A Street, Lewis Street, and Sacajawea Park Road. Freight traffic on the bridges over the Columbia and Snake Rivers ranges from 6-20%. Figure 6 summarizes freight activity within Pasco.

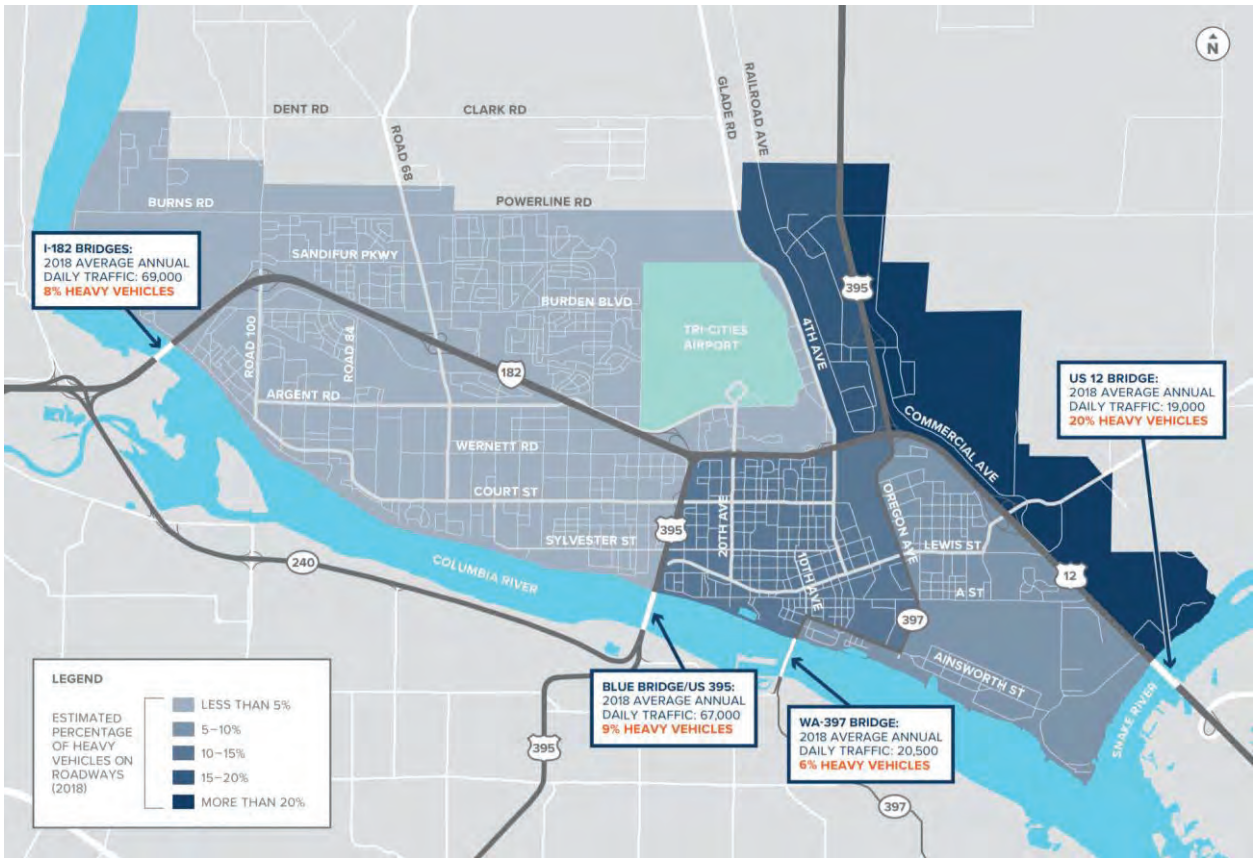



**FIGURE 6. FREIGHT TRAVEL PATTERNS IN PASCO (Source: StreetLight Data)**

Although the distribution of freight traffic for Pasco remains similar throughout the year, the total volume of freight traffic increases during summer and early fall months, as seen in Figure 7. Freight traffic peaks in the spring and summer months (April to September) where it is 7-8% above average; the months of June, August, and September have the highest freight traffic. Freight traffic is lower in the fall and winter months (October to March) where it is 6-10% below average. The seasonal variation in freight volumes mirrors the growing and harvest season within the Columbia River Basin which suggests the importance of regional agriculture for Pasco's economy.

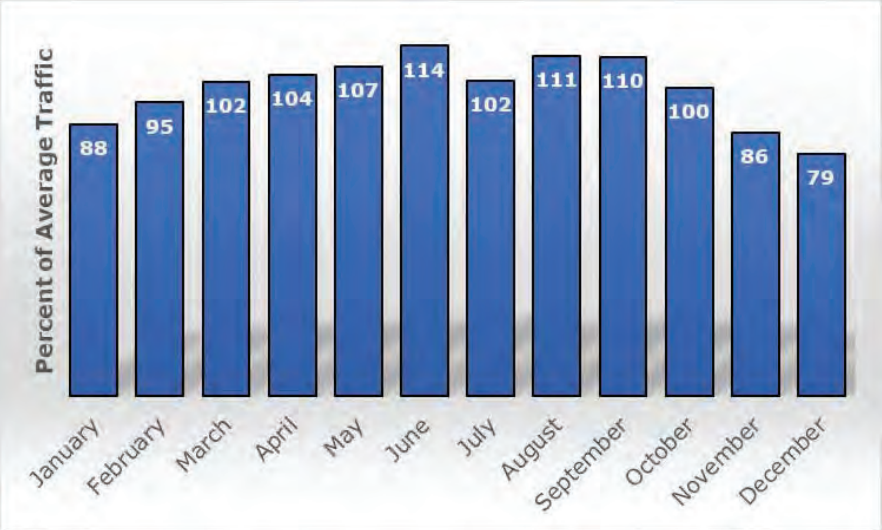



**FIGURE 7. SEASONAL VARIATION IN FREIGHT TRAFFIC FOR PASCO (Source: StreetLight Data)**

## COMMUTE PATTERNS

Street Light data can also infer trip purpose using a device's identified "home" or "work" location. Inferred home-based work trips that begin in Pasco during the AM peak (6-10 AM) were used to understand typical commute trends for residents of Pasco. Since Street Light flags "home" and "work" locations based on where a device typically spends daylight or evening hours, this data set does count students travelling to school or overnight shift works in Pasco who travel home during the AM peak as home-based work trips. Street Light data estimates about 50% of Pasco's residents have local jobs within Pasco for work which is twice the percentage estimated by the US Census (25%)[5]. The top Pasco employers include the following:

- Downtown Pasco area businesses
- Chiawana High School (including students)
- Industrial businesses in eastern Pasco
- Commercial businesses along US 395

Within the Tri-Cities region, other major employment destinations include the cities of Kennewick, Richland, and the Hanford Nuclear Site. Commute patterns for Pasco residents on the Columbia River bridges mirror these destinations. 26% of commute trips to jobs outside of Pasco use the I-182 Bridges to access jobs in Richland, Kennewick, and the Hanford site while 16% of commute trips use the Blue Bridge/US 395 Bridge, primarily to access jobs within Kennewick or Richland. Existing commute patterns are summarized in

[5] US Census On the Map. *Work Destination Report – Home Selection Area to Work Places.* https://onthemap.ces.census.gov/cgi-bin/report.py?mode=serve_page&t=otm_23e9532e0d994c57afb714237fd6325d&download=false&format=pdf Accessed. May 11, 2020.

Figure 8. These numbers were estimated using a full year of observed Street Light data, so high school or community college students are also captured within this commute data.

Residents of West Pasco (west of US 395 or north of I-182) are more likely to travel outside of Pasco for work, and more West Pasco residents travel to Hanford, Richland, West Richland, and Kennewick/Richland than East Pasco residents. Conversely, residents of East Pasco who travel outside of Pasco for work are more likely to be employed in Kennewick or the eastern Tri-Cities area than residents of West Pasco. Within Pasco, employment is also geographically concentrated; residents are more likely to be employed near their home. A higher percentage of residents of East Pasco work at the industrial businesses of east Pasco compared to residents of West Pasco.

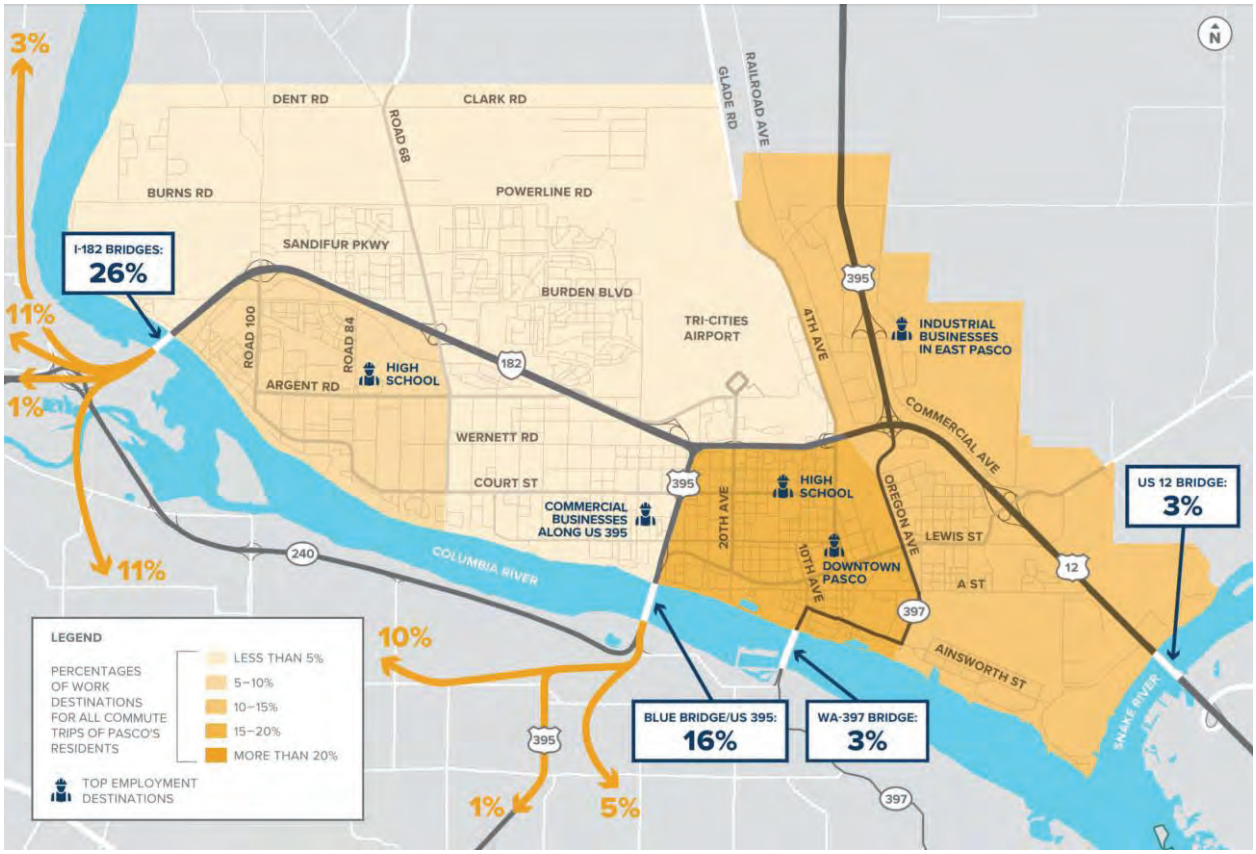



**FIGURE 8. COMMUTE PATTERNS FOR PASCO RESIDENTS (Source: Street Light Data)**

Commuters from the Tri-Cities region who are employed in Pasco tend to live in Kennewick (13% of Pasco workers) or in the western Kennewick/eastern Richland area (16% of Pasco workers). 5% of workers commute from Richland and 6% of workers commute from West Richland. Residents of Pasco who stay within Pasco fork work tend to live south of I-182 although some of Pasco's workers do live in the newer residential developments around the Road 68 commercial core.

## EXISTING TRANSIT SERVICES

Local transit services are provided by Ben Franklin Transit which operates 8 fixed route bus services within Pasco, including:

- Route 64: Pasco A Street
- Route 65: Pasco Lewis
- Route 66 & Route 67: Pasco Sylvester & Pasco Sandifur
- Route 150: Pasco / Kennewick
- Route 160 / Kennewick
- Route 225: Pasco / Richland
- Route 268: Pasco / Richland

Weekday service is typically provided between 5:45 AM and 8:15 PM on all routes with half hour headways. Select routes run until 10:15 PM on weekdays, including inter-city routes to both Kennewick and Richland. Service is similar on most routes for Saturday although service does not start until 6:45. Transit service ends an hour earlier on Saturdays for Routes 64 and 160, and Route 268 does not provide Saturday Service. No transit services are available on Sunday. Ben Franklin Transit operates service for Pasco to and from the 22nd Avenue Transit Center which facilitates transfers between routes. Riders can currently park at both the 22nd Avenue Transit Center and the HAPO Event Center.

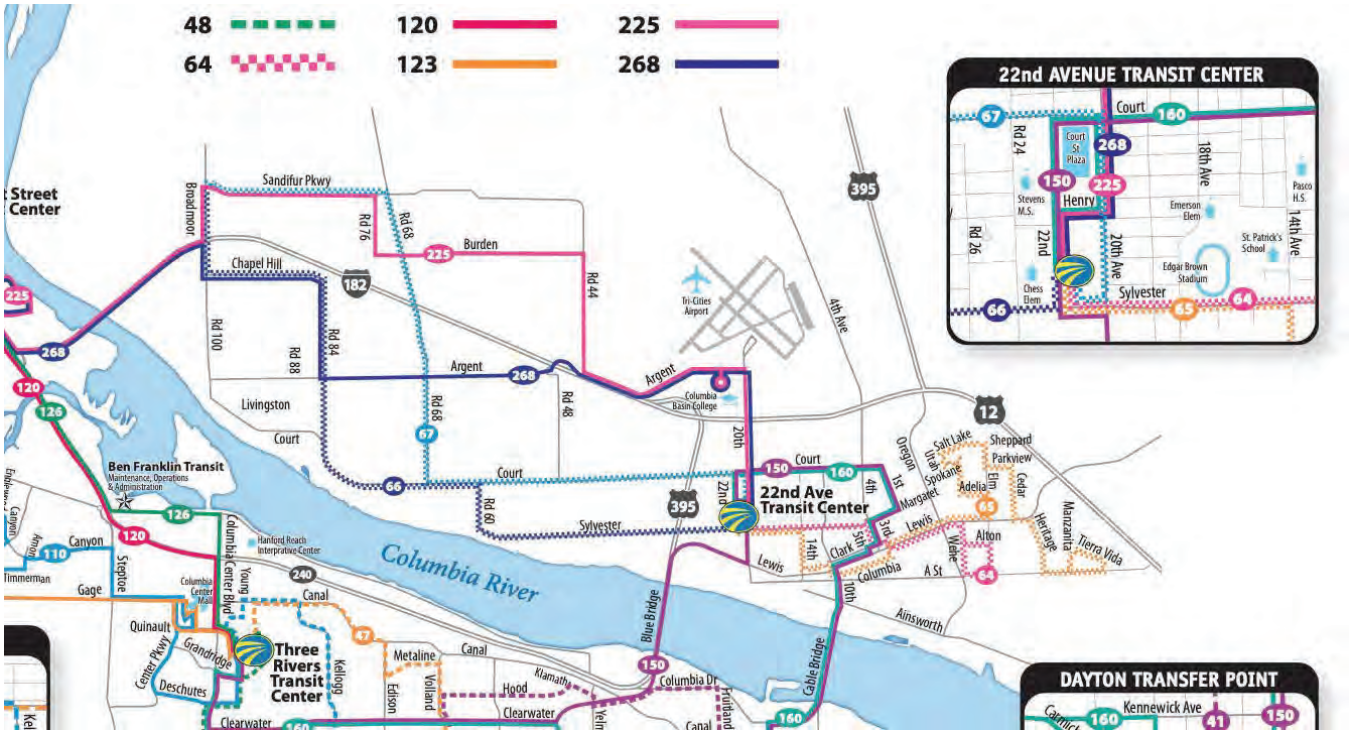



**FIGURE 9. BEN FRANKLIN TRANSIT ROUTES**

Ben Franklin Transit also operates Dial-A-Ride service for individuals with a disability between 6 AM and 10 PM Monday to Friday and between 7 AM and 10 PM on Saturday. Vanpool services are also available for commuters travelling to Pendleton, Walla Walla, Connell, Patterson, and the Hanford Nuclear Site.

## EXISTING TRANSPORTATION SYSTEM OPERATIONS

Most study intersections on WSDOT facilities currently operate within their mobility target during the morning peak period, including all US highway or interstate ramp terminals within Pasco. Two study intersections exceed their mobility target during the AM peak: US 12/E A Street and US 395/Foster Wells Road. These intersections are two at-grade intersections on US highways within Pasco, and the intersection of US 12/E A Street has previously been identified as a future interchange. The intersection of Road 68/Burden Boulevard, under the City of Pasco's jurisdiction, also has major delays during the AM peak. Existing Weekday AM Peak Hour intersection operations is summarized below in Table 1.

### TABLE 1: EXISTING WEEKDAY AM PEAK HOUR WEEKDAY INTERSECTION OPERATIONS

| # | CONTROL | INTERSECTION | LEVEL OF SERVICE* | DELAY (SECONDS PER VEHICLE) | VOLUME TO CAPACITY RATIO |
|---|---|---|---|---|---|
| 1 | Signal | Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp | B | 16 | 0.40 |
| 2 | Signal | Road 100 & I 182 EB Off Ramp/I 182 EB On Ramp | B | 17 | 0.68 |
| 3 | Signal | Road 68 & I 182 WB On/Off Ramp/I 182 WB On Ramp | B | 16 | 0.84 |
| 4 | Signal | Road 68 & I 182 EB On/Off Ramp/I 182 EB On Ramp | A | 7 | 0.50 |
| 5 | Signal | US 395 On/Off Ramp/Morasch Ln & Argent Rd | B | 13 | 0.44 |
| 6 | Signal | US 395 SB On Ramp/US 395 SB On/Off Ramp & Court St | A | 9 | 0.48 |

| | | | | | |
|---|---|---|---|---|---|
| 7 | Signal | US 395 NB Off Ramp/US 395 NB On Ramp & Court St | B | 12 | 0.74 |
| 8 | TWSC | Sylvester St & US 395 NB Off Ramp | A/C | 0/15 | 0.26/0.46 |
| 9 | Signal | 20th Ave & I 182 WB On Ramp/I 182 WB Off Ramp | B | 14 | 0.72 |
| 10 | Signal | 20th Ave & I 182 EB On/Off Ramp | B | 18 | 0.68 |
| 11 | Signal | 4th Ave & US 395 WB On/Off Ramp | B | 10 | 0.44 |
| 12 | Signal | 4th Ave & US 395 EB On/Off Ramp | B | 20 | 0.75 |
| 13 | TWSC | US 395 & Foster Wells Rd | A/F | 10/54 | 0.23/0.22 |
| 14 | TWSC | Rainier Ave/US 395 SB On/Off Ramp & Kartchner St | A/C | 9/21 | 0.16/0.19 |
| 15 | TWSC | Commercial Ave/US 395 NB On/Off Ramp & Kartchner St | A/D | 8/33 | 0.06/0.5 |
| 16 | TWSC | Hwy 12 EB On/Off Ramp & Lewis St & Hwy 12 EB Off Ramp | A/C | 10/22 | 0.29/0.63 |
| 17 | TWSC | Hwy 12 WB Off Ramp/Hwy 12 WB On/Off Ramp & Lewis St | A/B | 9/14 | 0.31/0.18 |
| 18 | TWSC | Hwy 12 & E A St | B/F | 11/129 | 0.25/0.89 |
| 19 | Signal | Road 68 & Burden Blvd | D | 52 | 0.87 |

*Shaded values indicate an intersection that exceeds its mobility target

During the Weekday PM peak period, WSDOT study locations, including freeway ramp terminals, handle the bulk of traffic; these locations tend to have the most severe operational issues, while most local street intersections currently operate with tolerable

congestion, as defined by their mobility target. The few ramp terminals that have severe congestion are either two-way stop control (TWSC) or at-grade intersections which have high side street delay. The intersections of US 12/E A Street and Rainier Ave & US 395 SB Ramps/Kartchner Street both currently operate over-capacity on their minor street approach with excessive vehicle delays. During the PM peak, the traffic signals at I-182 WB Ramps/Road 68 and 4th Ave/US 395 WB Ramps also both exceed their mobility targets.

Most City streets operate well within their mobility target during the PM peak. Only the intersection of Road 68/Burden Boulevard exceeds its mobility target during the PM peak. PM peak vehicle operations for all study intersections are summarized below in Table 2.

**TABLE 2: EXISTING WEEKDAY PM PEAK HOUR INTERSECTION OPERATIONS**

| # | CONTROL | INTERSECTION | LEVEL OF SERVICE* | DELAY (SECONDS PER VEHICLE) | VOLUME TO CAPACITY RATIO |
|---|---|---|---|---|---|
| 1 | Signal | Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp | A | 9 | 0.72 |
| 2 | Signal | Road 100 & I 182 EB Off Ramp/I 182 EB On Ramp | C | 21 | 0.86 |
| 3 | Signal | Road 68 & I 182 WB On/Off Ramp/I 182 WB On Ramp | F | 136 | 1.43 |
| 4 | Signal | Road 68 & I 182 EB On/Off Ramp/I 182 EB On Ramp | B | 16 | 0.77 |
| 5 | Signal | US 395 On/Off Ramp/Morasch Ln & Argent Rd | B | 17 | 0.49 |
| 6 | Signal | US 395 SB On Ramp/US 395 SB On/Off Ramp & Court St | A | 10 | 0.54 |
| 7 | Signal | US 395 NB Off Ramp/US 395 NB On Ramp & Court St | B | 17 | 0.89 |
| 8 | TWSC | Sylvester St & US 395 NB Off Ramp | A/E | 0/38 | 0.23/0.82 |
| 9 | Signal | 20th Ave & I 182 WB On Ramp/I 182 WB Off Ramp | C | 26 | 0.91 |

| | | | | | |
|---|---|---|---|---|---|
| 10 | Signal | 20th Ave & I 182 EB On/Off Ramp | C | 21 | 0.73 |
| 11 | Signal | 4th Ave & US 395 WB On/Off Ramp | E | 58 | 1.04 |
| 12 | Signal | 4th Ave & US 395 EB On/Off Ramp | B | 16 | 0.69 |
| 13 | TWSC | US 395 & Foster Wells Rd | B/F | 12/74 | 0.26/0.53 |
| 14 | TWSC | Rainier Ave/US 395 SB On/Off Ramp & Kartchner St | B/F | 11/363 | 0.38/1.51 |
| 15 | TWSC | Commercial Ave/US 395 NB On/Off Ramp & Kartchner St | A/D | 8/31 | 0.08/0.61 |
| 16 | TWSC | Hwy 12 EB On/Off Ramp & Lewis St & Hwy 12 EB Off Ramp | A/B | 8/11 | 0.28/0.18 |
| 17 | TWSC | Hwy 12 WB Off Ramp/Hwy 12 WB On/Off Ramp & Lewis St | B/B | 11/13 | 0.24/0.32 |
| 18 | TWSC | Hwy 12 & E A St | B/F | 14/1688 | 0.44/3.88 |
| 19 | Signal | Road 68 & Burden Blvd | E | 62 | 1.12 |
| 20 | TWSC | Road 100 & Dent Rd/Edelman Rd | A/D | 8/26 | 0.13/0.35 |
| 21 | Signal | Road 100 & Sandifur Parkway | B | 12 | 0.50 |
| 22 | Signal | Road 100 & Chapel Hill Rd | C | 21 | 0.69 |
| 23 | TWSC | Road 100 & Argent Road | A/C | 8/18 | 0.24/0.12 |
| 24 | Signal | Road 84 & Argent Road | B | 12 | 0.28 |

| | | | | | |
|---|---|---|---|---|---|
| 25 | TWSC | Court Street & Road 84 | A/B | 8/11 | 0.12/0.12 |
| 26 | TWSC | Road 68 & Edelman Road/Powerline Rd | A/C | 8/18 | 0.24/0.13 |
| 27 | Signal | Road 68 & Sandifur Pkwy | C | 22 | 0.70 |
| 28 | Signal | Road 68 & Chapel Hill Rd | C | 20 | 0.74 |
| 29 | Signal | Road 68 & Argent Road | C | 22 | 0.69 |
| 30 | TWSC | Road 68 & Court Street | A/D | 8/34 | 0.13/0.73 |
| 31 | TWSC | Road 60 & Court Street | A/C | 8/21 | 0.13/0.36 |
| 32 | TWSC | Madison Ave & Burden Blvd | A/F | 9/72 | 0.35/0.71 |
| 33 | TWSC | Argent Rd & Rd 44 | A/B | 0/15 | 0.17/0.47 |
| 34 | Signal | 20th Ave & Argent Rd | B | 20 | 0.66 |
| 35 | Signal | 20th Ave & Court St | C | 25 | 0.71 |
| 36 | Signal | 20th Ave & Sylvester St | C | 23 | 0.51 |
| 37 | Signal | 20th Ave & Lewis Street | C | 22 | 0.54 |
| 38 | Signal | 10th Ave & Sylvester St | B | 12 | 0.59 |
| 39 | Signal | 10th Ave & Lewis St | C | 22 | 0.45 |
| 40 | Signal | 10th Ave & A St | B | 17 | 0.36 |

| | | | | | |
|---|---|---|---|---|---|
| 41 | Signal | 10th Ave & Ainsworth St | B | 19 | 0.62 |
| 42 | Signal | 4th Ave & Court St | B | 19 | 0.70 |
| 43 | Signal | 4th Ave & Sylvester St | A | 8 | 0.24 |
| 44 | Signal | 4th Ave & W Lewis St | B | 14 | 0.56 |
| 45 | Signal | 4th Ave & A St | A | 5 | 0.29 |
| 46 | TWSC | 4th Ave & Ainsworth St | A/A | 8/9 | 0.29/0.02 |
| 47 | Signal | N Oregon Ave & E Lewis St | B | 17 | 0.43 |
| 48 | Signal | Oregon Ave/S Oregon Ave & E A St | B | 11 | 0.23 |
| 49 | TWSC | Oregon Ave & Ainsworth St | A/C | 8/17 | 0.12/0.41 |
| 50 | TWSC | Heritage Blvd & Lewis St & Avery Ave | A/C | 8/19 | 0.29/0.4 |
| 51 | TWSC | E A St & Heritage Blvd | A/C | 8/17 | 0.12/0.43 |
| 52 | TWSC | Cedar Ave & Lewis St | A/C | 9/24 | 0.15/0.48 |

*Shaded values indicate an intersection that exceeds its mobility target

## KEY TRANSPORTATION ISSUES

The review of Pasco's existing transportation system was used to identify key operational, safety, and connectivity issues to inform an assessment of Pasco's existing transportation system. This review identified locations that had high levels of congestion during peak travel hours, higher than expected crash rates, and barriers to safe and convenient travel for all users.

Figure 10 shows a composite of our system performance findings for Pasco which will be considered during the plan development. Detailed findings for each travel mode are also summarized below.

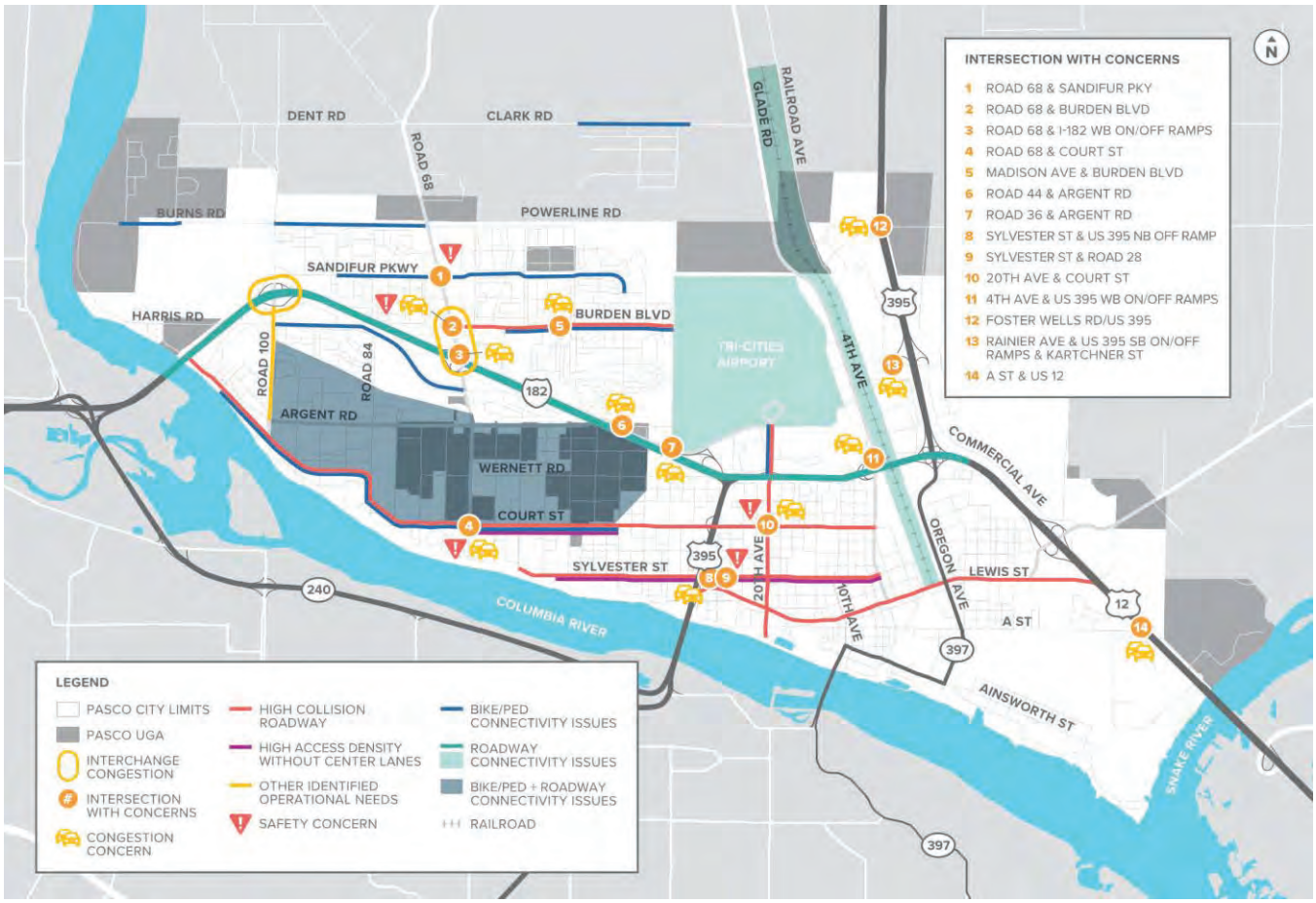



**FIGURE 10. PASCO'S EXISTING TRANSPORTATION SYSTEM CHALLENGES**

### PEDESTRIANS AND BICYCLISTS

- Limited system connectivity; key barriers include:
  - Highway crossings without pedestrian or bicycle facilities (*e.g.* Road 100, Road 68)
  - Long blocks (up to 2,000 feet) without any pedestrian connections

    - Limited sidewalks and bike facilities, including along arterial and collector roadways
    - Rural roadway standards which do not include multimodal facilities
- Corridors without adequate pedestrian or bicyclist connections, including:
    - Court Street (Road 44 to Road 108)
    - Wernett Road (Road 48 to Road 76)
    - Argent Road (Road 48 to Road 100)
    - Chapel Hill Boulevard (Road 68 to Road 100)
    - Burden Boulevard (Road 36 to Road 60)
    - Sandifur Parkway (Porto Lane to Road 90)
    - Road 44 (Laredo Drive to Porto Lane)
    - Burns Road (Road 68 to Road 100; Dent Road to Kohler Road)
    - Clark Road (Road 36 to Lentz Road/Janet Street)
- Limited crossing opportunities on high-speed roadways, outside of existing signals
- High crash risk
    - Over two hit and run crashes annually involve pedestrians
    - Nearly half of pedestrian crashes occurred at marked crosswalks
    - Over 60% of bicyclists crashes were caused by drivers failing to yield the right of way when turning or crossing

## TRANSIT

- Basic transit service
- Limited stop amenities
- Limited access from new residential developments to transit
- Limited, safe crossing opportunities near stops
- Limited existing park and ride locations

## VEHICLES

- Limited system connectivity; key barriers include:
    - Long blocks (up to 2,000 feet) without any local street connections
    - Limited arterial or collector roadway access points for large residential developments
    - I-182
    - Pasco Rail Yard
- Peak period intersection congestion near ramp terminals and at critical intersections in Pasco, including at:
    - Road 100/I-182 Interchange
    - Road 68/I-182 Interchange
    - Road 68/Burden Boulevard
    - Road 68/Court Street
    - Madison Avenue/Burden Boulevard
    - Road 36/Argent Road
    - Road 44/Argent Road

    - 20th Avenue/ Court Street
    - 4th Avenue/I-182 WB ramp terminal
    - US 12/A Street
    - US 395 SB ramp terminal/Rainier Avenue/Kartchner Street
    - US 395/Foster Wells Road
- AM peak period congestion on Road 100 between the I-182 interchange and Argent Road from Chiawana High School traffic
- Existing at-grade intersections on national highways, including US 12/A Street and US 395/Foster Wells Road
- High access density without a center, two-way left turn lane on Court Street and Sylvester Street
- Vehicle speeding
- Existing, multi-lane half street connections without striping to denote travel lanes

# APPENDIX

# TRAFFIC SAFETY ASSESSMENT

DATE: Feb 12, 2020

TO: Project Management Team | City of Pasco

FROM: Veronica Sullivan, Carl Springer | DKS Associates

SUBJECT: Pasco Transportation System Master Plan Project #19209-000

## SUMMARY

Traffic safety was evaluated on major roadways within the City of Pasco. Collision data was provided by WSDOT for the five-year period from 2014 to 2018[1]. The study team identified the following findings related the existing safety conditions:

- The most common collision types were rear-end and entering at angle crashes.
- 75% of rear-end crashes and 64% of all crashes occurred at intersections[2].
- The five intersections with the highest crash rate were W Court Street/ Road 68, Sylvester Street/Road 28, Burden Boulevard/Road 68, 20th Avenue/ W Court Street and Sandifur Parkway/ Road 68.
- The six roadway segments with highest crash rate accounted for 57% of all collisions within the city were Burden Boulevard, 20th Avenue, Sylvester Street, Lewis Street, Road 68 and Court Street.
- For most crashes, neither speeding nor alcohol/drug use were documented as significant contributors, and only reported in less than 8% of all crashes.

[1] Crash data provided from the 2020 City Safety Program:

https://www.wsdot.wa.gov/LocalPrograms/Traffic/CitySafetyProgram

[2] Intersection related crash includes “at intersection and related”, “at intersection and not related” and “intersection related but not at intersection”.

- The most common driver errors reported were inattention, failed to yield right-of-way and following too closely.
- 42% of pedestrian crashes involved a driver that reported inattention or field to yield right-of way to pedestrian.
- 77% of bicycle crashes occurred at intersections and 54% involved a vehicle making a turning movement.

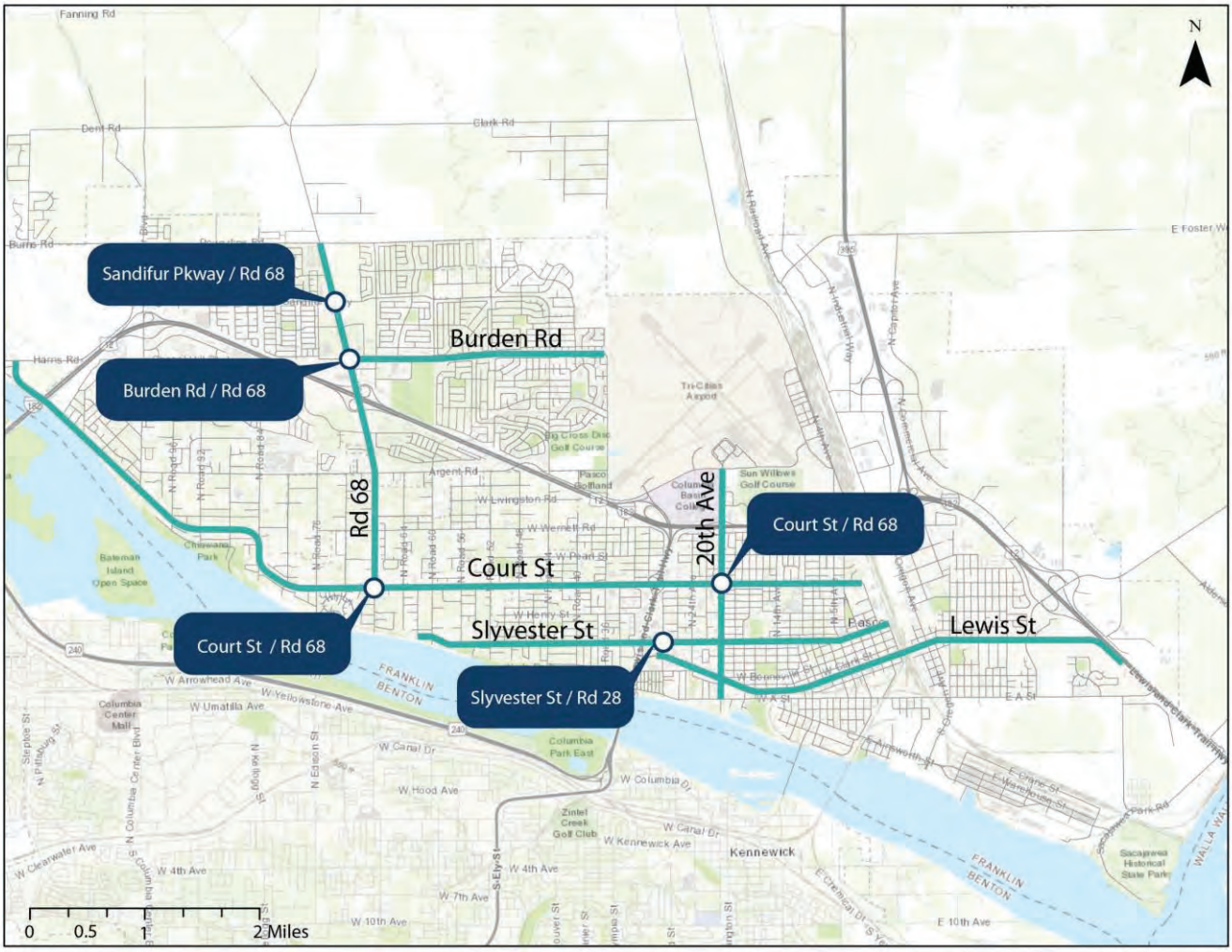



Figure 1: Identified high crash rate intersections and roadway segments.

## TRAFFIC SAFETY ANALYSIS RESULTS

### TRENDS OVER LAST FIVE YEARS

There were 3,984 total crashes reported (797 per year) within the City of Pasco on all roadway facilities. The type, severity, and reported driver errors are summarized in the following discussion.

- 1159 rear-end crashes (29% of crashes)
- 1087 entering at angle crashes (27% of crashes)
- 54 pedestrian-related crashes (1.4% of crashes)
- 26 bicycle-related crashes (0.01% of crashes)

Crashes within the City of Pasco; over the past five years:

- 7 crashes resulted in fatalities
- 43 crashes resulted in serious injuries (Injury A)
- 72% of crashes are property damage only or lead to minor injuries (Injury C)

The most common driver errors are responsible for nearly 65 percent of all crashes including:

- 1019 Inattention (26%)
- 627 Did Not Yield Right-of-Way (16%)
- 561 Followed Too Closely (14%)
- 225 Improper Turn or U-turn (6%)
- 121 Disregard Stop and Go Light (3%)

Risky behavior, including alcohol/drug use or speeding was implicated in 141 and 175 crashes, respectively. These crashes tend to be less severe; alcohol/drug use and speeding is involved in 64% and 80% of property damage only crashes.

## PEDESTRIAN SAFETY

54 crashes involved at least one pedestrian. Crashes were most common in along major arterials, including W Court Street (13 crashes), W Sylvester Street (7 crashes) and W Lewis Street (5 crashes).

- About two-thirds (61%) of pedestrian-involved crashes occurred during daylight conditions.
- 22% (12 crashes) were caused by drivers failing to yield the right of way and 20% were caused by driver inattention.
- 11 crashes were hit and run
- 26 crashes occurred at a marked crosswalk
- 16 crashes involved a ped crossing at an intersection with a signal
- 6 crashes involved a ped crossing at an intersection with no signal

## BICYCLE SAFETY

26 crashes involved a bicyclist over the past five years.

- 77% of crashes occurred at an intersection.
- 2 crashes occurred at the intersections of W Argent Rd/ Road 100 and W Court St/Route 395 Northbound off ramps.
- 3 crashes occurred along these two segments: N 4th Ave and N 20th Ave.
- 54% of crashes involved a vehicle that was making a turning movement: 8 crashes making a left turn and 6 crashes making a right turn.
- 5 crashes occurred in dark conditions, including one reported with no streetlights on. The remaining crashes occurred during daylight conditions.
- 8 crashes reported the cyclist with “inattention” and 4 crashes where the cyclist did not grant right-of-way to vehicle.

Most of the crashes involving a bicyclist were caused by drivers failing to yield the right of way when turning or crossing (64 percent). The remaining crashes were caused by either a bicycle or motorist failing to obey traffic control devices. All bicycle crashes occurred during the day.

## INTERSECTION SAFETY

52% of crashes occur at intersections and 27% of crashes were within 75 feet of a signalized intersection. Table 1 shows the weighted crash rate based on crash severity and frequency.

**TABLE 1: INTERSECTIONS WITH HIGH CRASH RATES**

| # | LOCATION | NO APPARENT INJURY | POSSIBLE INJURY | SUSPECTED MINOR INJURY | SUSPECTED SERIOUS INJURY | GRAND TOTAL | WEIGHTED TOTAL* | APPROXIMATE AADT | CRASH RATE[3] |
|---|---|---|---|---|---|---|---|---|---|
| 1 | W COURT ST AND RD 68 | 20 | 13 | 3 | 0 | 36 | 180 | 9830 | 2.01 |
| 2 | SYLVESTER ST AND RD 28 | 28 | 9 | 1 | 1 | 39 | 228 | 14640 | 1.46 |
| 3 | BURDEN BLVD AND RD 68 | 77 | 22 | 2 | 2 | 103 | 517 | 48370 | 1.17 |
| 4 | 20TH AVE AND W COURT ST | 45 | 18 | 4 | 0 | 67 | 265 | 26990 | 1.36 |
| 5 | SANDIFUR PKWY AND RD 68 | 26 | 13 | 2 | 0 | 41 | 176 | 23070 | 0.97 |
| 6 | BURDEN BLVD AND CONVENTION PL | 32 | 16 | 1 | 1 | 50 | 302 | 43960 | 0.62 |
| 7 | W COURT ST AND 26TH AVE | 21 | 8 | 4 | 0 | 33 | 141 | 25340 | 0.71 |
| 8 | RD 68 AND EB RAMPS | 55 | 13 | 2 | 0 | 70 | 205 | 42970 | 0.89 |
| 9 | RD 68 AND WB RAMPS | 46 | 15 | 3 | 0 | 64 | 226 | 48260 | 0.73 |
| 10 | BURDEN BLVD AND CLEMENTE LN | 39 | 11 | 1 | 0 | 51 | 159 | 43560 | 0.64 |

* Weighted total is based on the severity of the crash = PDO+ 10(Possible Injury +Suspected Minor Injury) + 100*(Suspected Serious Injury).

[3] Intersection Crash Rate Formula in Section 3.2.2:

https://safety.fhwa.dot.gov/local_rural/training/fhwasa1210/s3.cfm

## SEGMENT SAFETY

Six study segments were selected based on the number of crashes per mile, as summarized in Table 2 below. The combined number of crashes for all six segments make up 57% of total crashes within the City of Pasco.

**TABLE 2: STUDY SEGMENTS CRASH DATA SUMMARY**

| # | STUDY SEGMENT | UNKNOWN | NO APPARENT INJURY | POSSIBLE INJURY | SUSPECTED MINOR INJURY | SUSPECTED SERIOUS INJURY | DIED IN HOSPITAL | GRAND TOTAL | PEDESTRIAN CRASHES | BICYCLIST CRASHES | APPROX. STUDY CORRIDOR LENGTH IN MILES | AVERAGE AADT[4] | CRASH RATE[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BURDEN BLVD | 0 | 253 | 67 | 6 | 4 | 0 | 330 | 1 | 0 | 0.48 | 9447 | 3987.64 |
| 2 | 20TH AVE | 0 | 236 | 58 | 12 | 3 | 0 | 309 | 6 | 4 | 2.0 | 7046 | 1201.50 |
| 3 | SYLVESTER ST | 6 | 177 | 61 | 13 | 4 | 1 | 262 | 7 | 0 | 4.12 | 3673 | 948.68 |
| 4 | LEWIS ST | 4 | 227 | 79 | 12 | 3 | 0 | 325 | 6 | 6 | 4.22 | 4828 | 874.06 |
| 5 | RD 68 | 2 | 391 | 119 | 18 | 3 | 0 | 533 | 0 | 0 | 3.07 | 13687 | 695.05 |
| 6 | COURT ST | 5 | 373 | 126 | 25 | 2 | 0 | 531 | 11 | 2 | 6.68 | 6710 | 522.43 |

[4] Average AADT was an average of the volume collected from Pasco Tube Counts in 2018: https://data-cityofpasco.opendata.arcgis.com/datasets/pasco-tube-counts-2018

[5] Crash rate was calculated using Section 3.2.1 Road Segment Rate Calculation: https://safety.fhwa.dot.gov/local_rural/training/fhwasa1210/s3.cfm

## APPENDIX A – DETAILED DIAGRAMS OF CRASH DATA

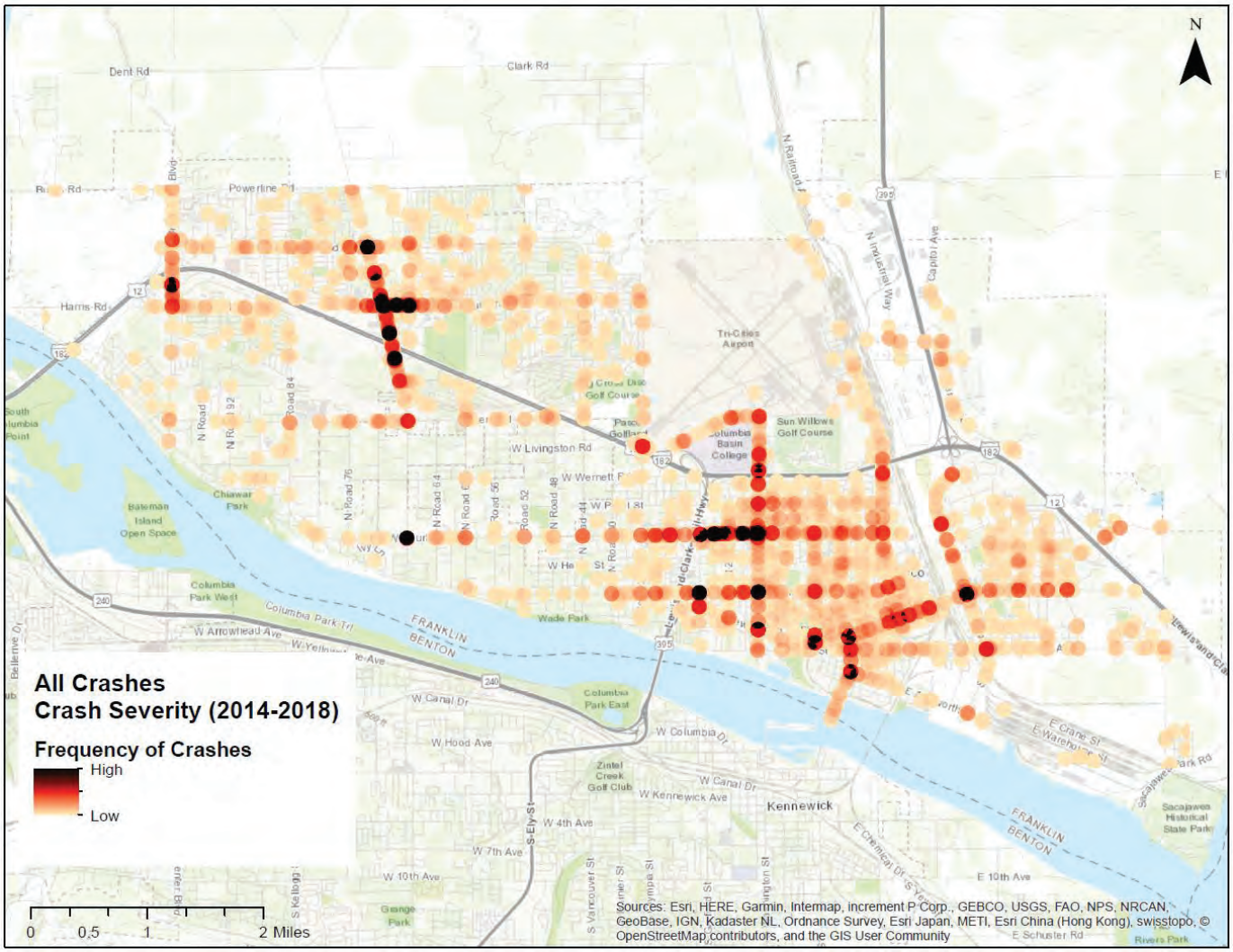



Figure 2: Heat Map of All Crashes within the City of Pasco.

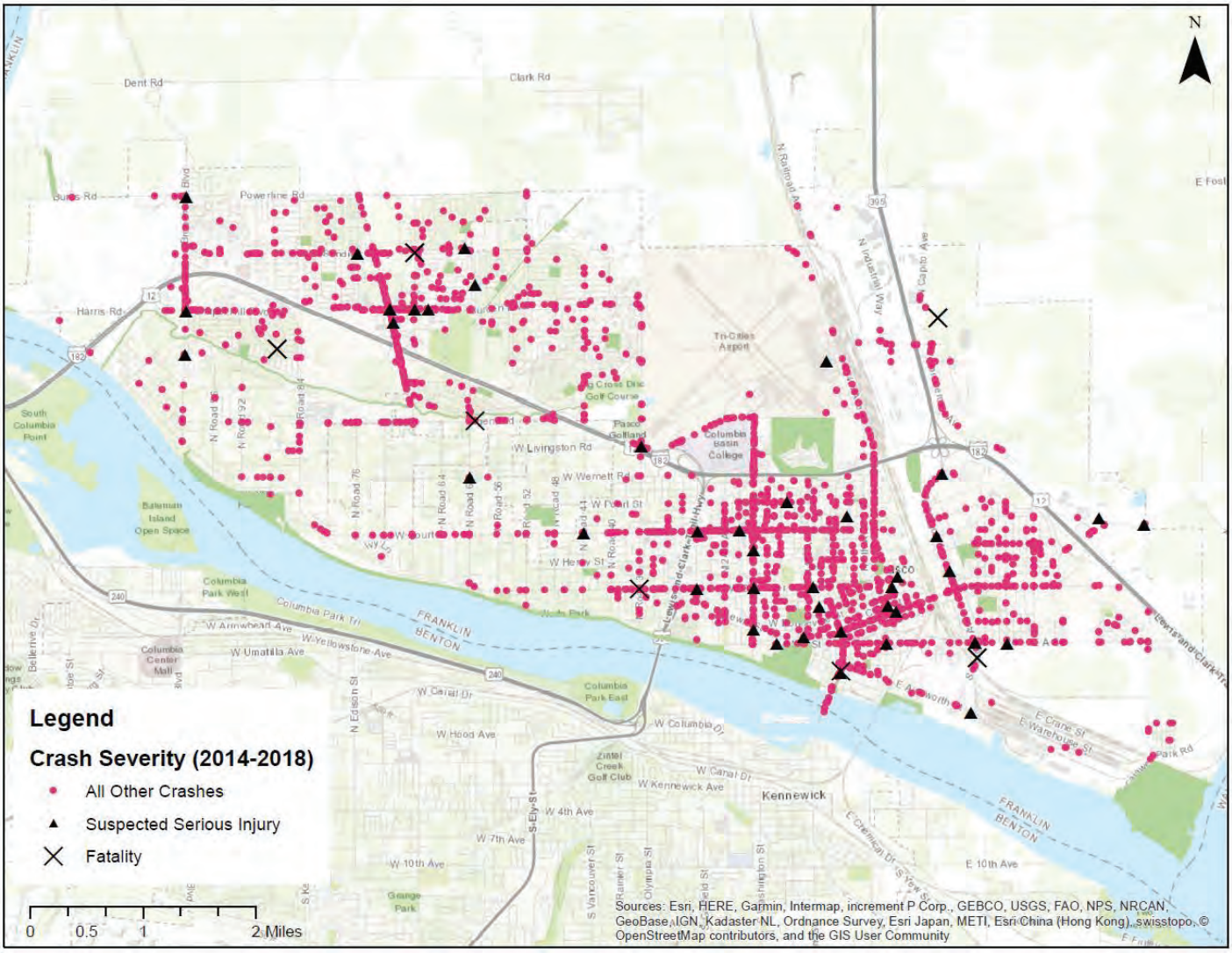



Figure 3: Location of Crashes Including Suspected Serious Injury and Fatality.

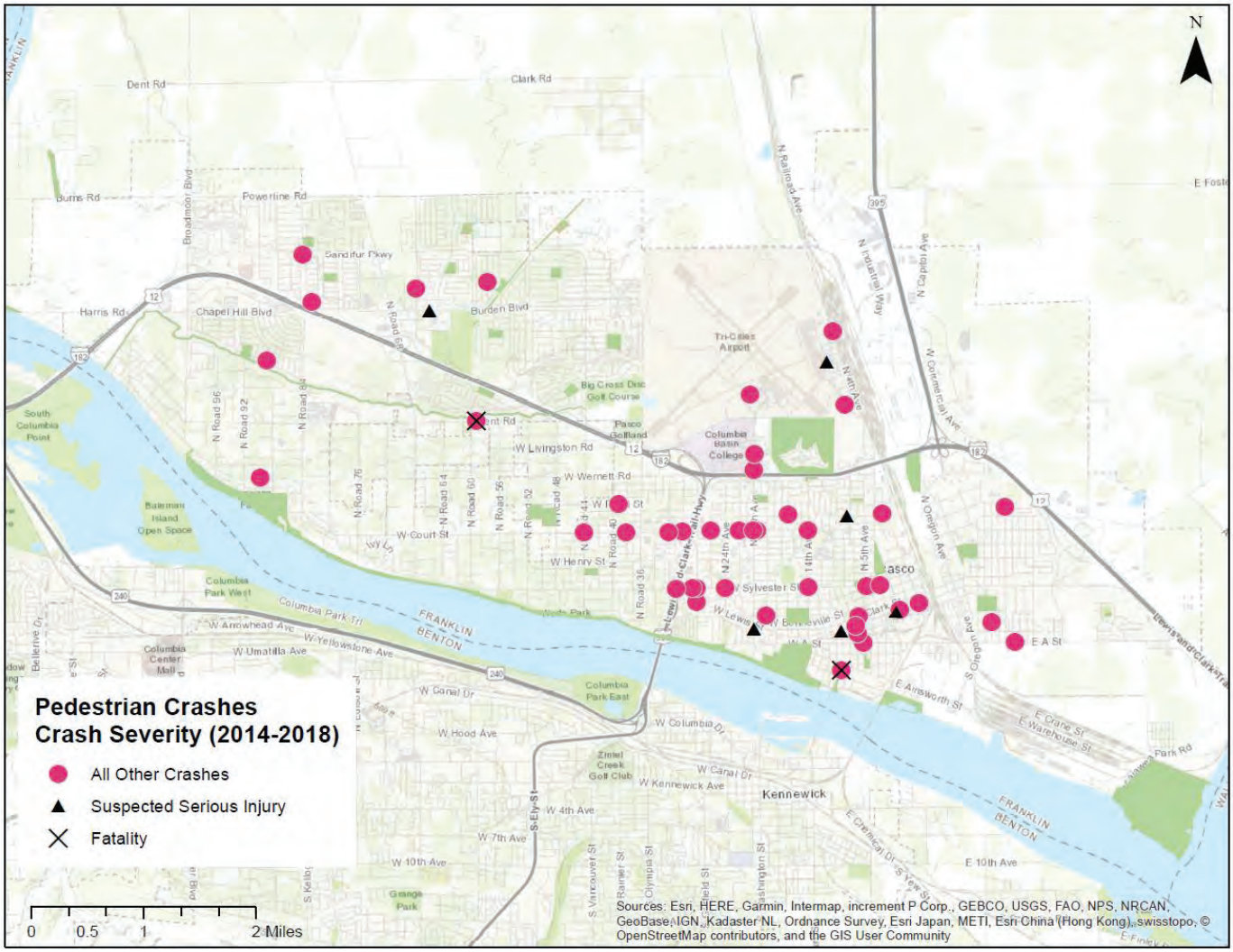



Figure 4: Location of Pedestrian Crashes Based on Crash Severity.

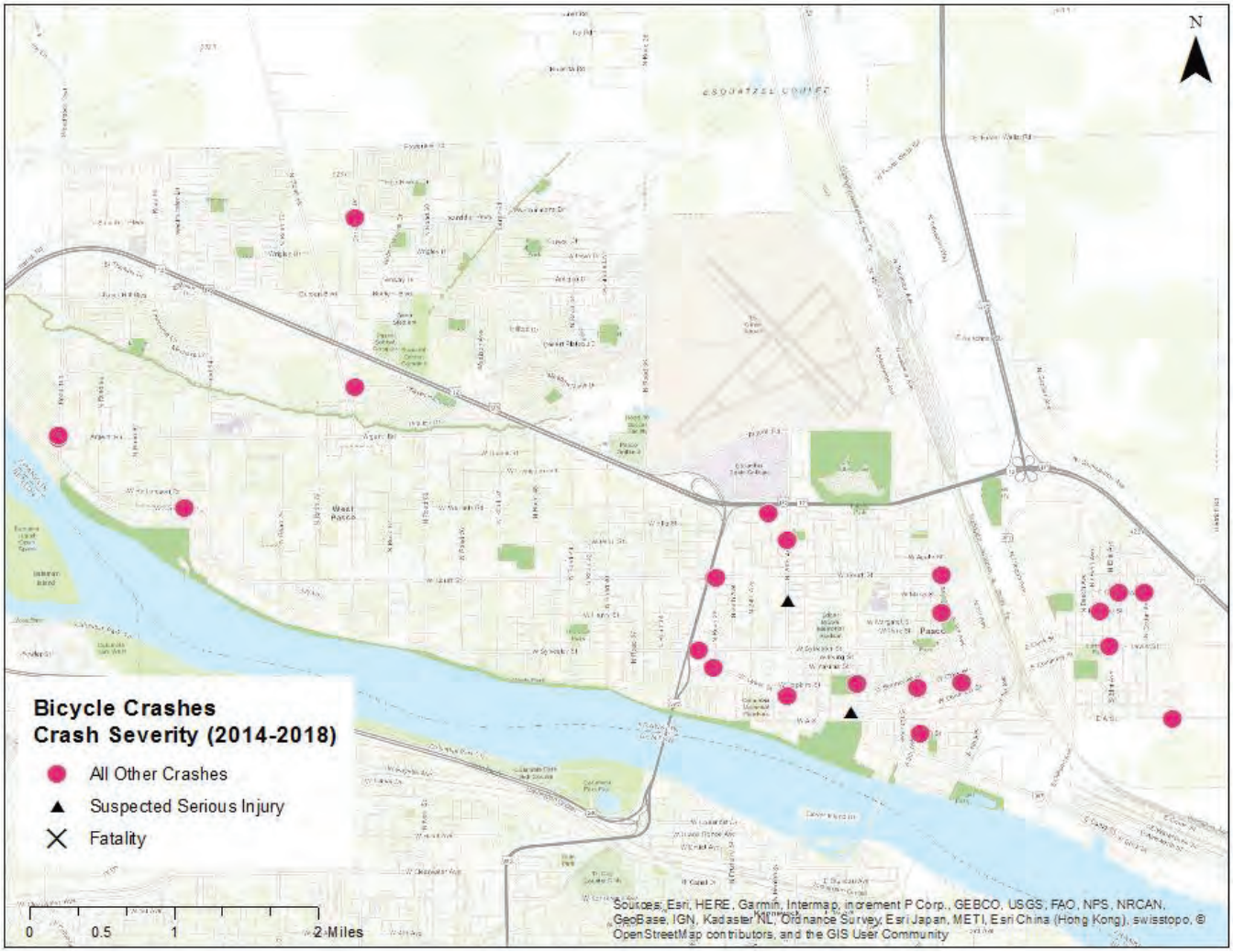
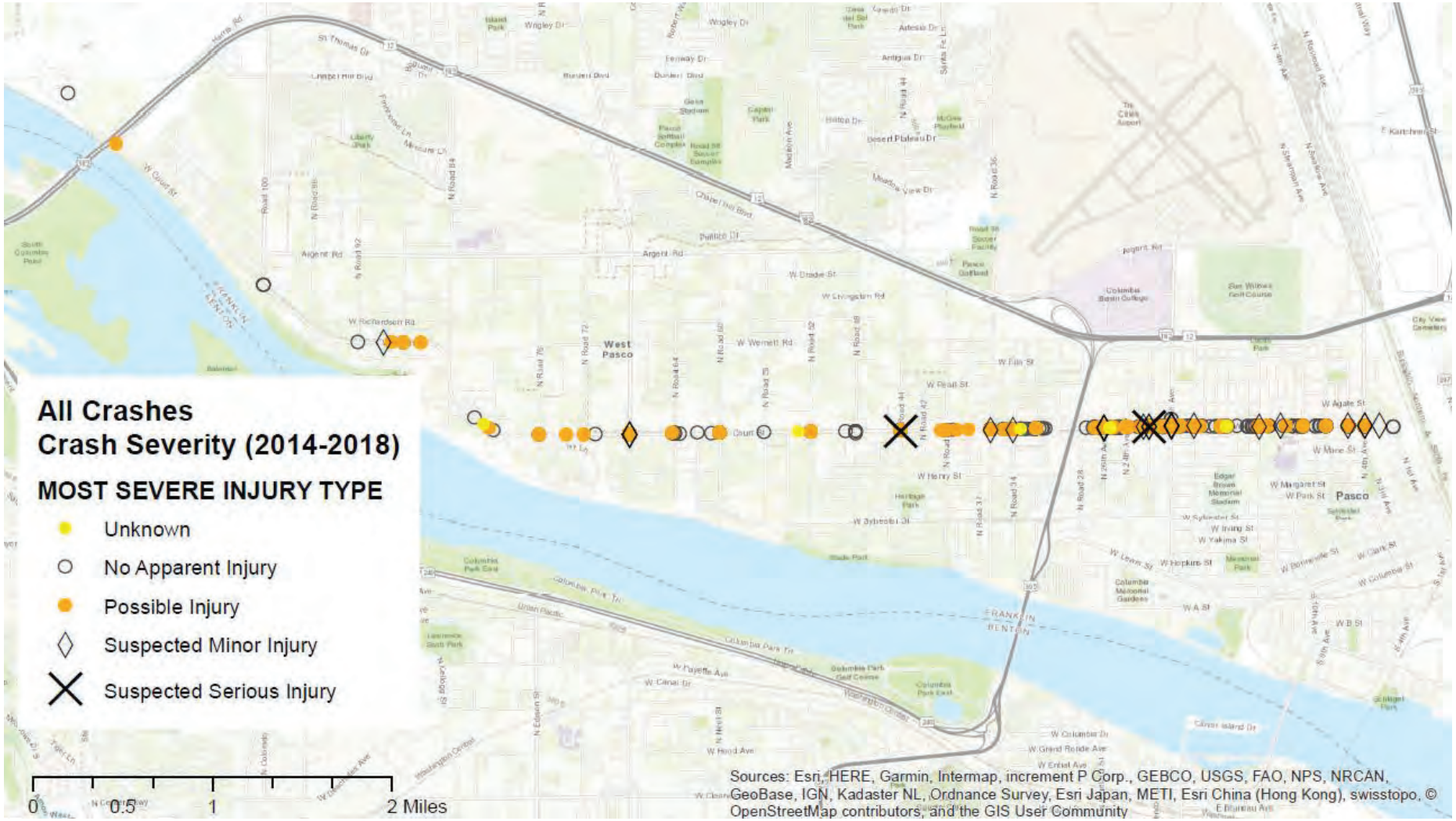
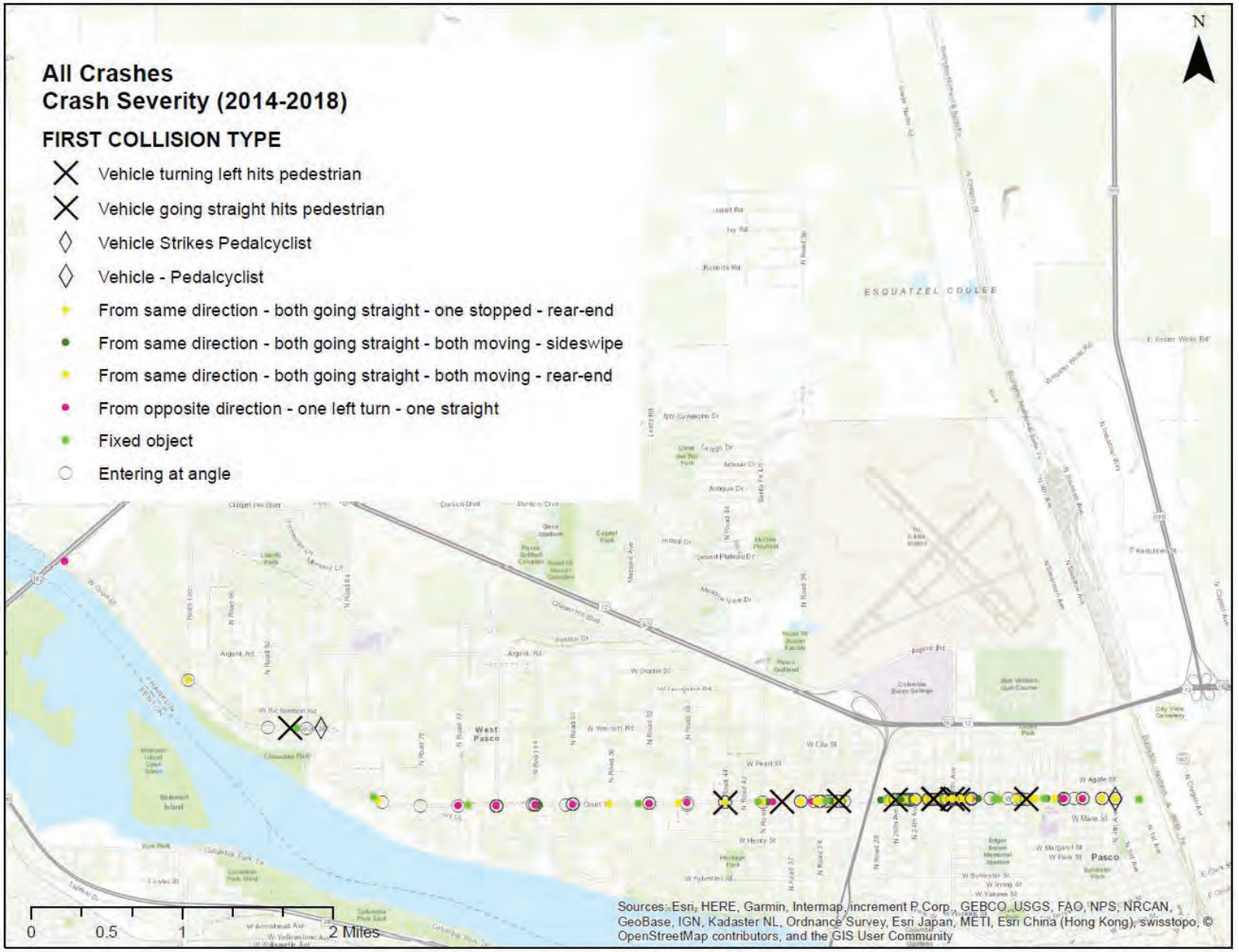



Figure 5: Location of Bicycle Crashes Based on Crash Severity.

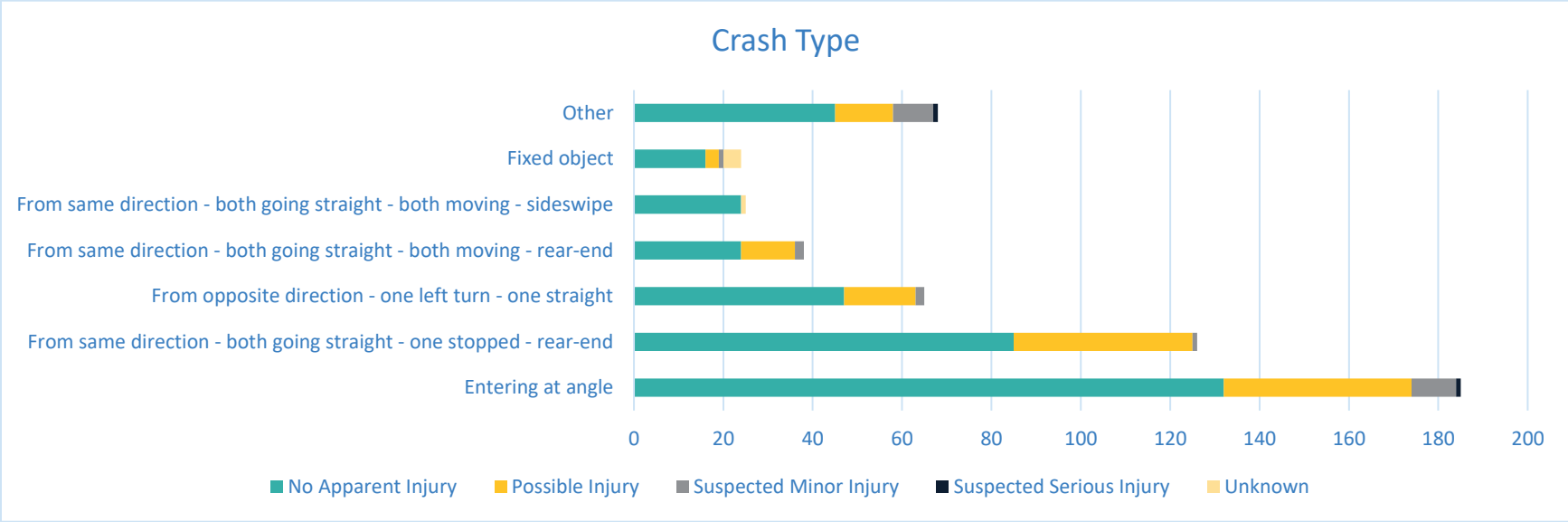
# APPENDIX B - ADDITIONAL SAFETY ANALYSIS FOR COURT STREET AND SYLVESTER STREET

## COURT ST




All Crashes
Crash Severity (2014-2018)
FIRST COLLISION TYPE
Vehicle turning left hits pedestrian
Vehicle going straight hits pedestrian
Vehicle Strikes Pedalcyclist
Vehicle - Pedalcyclist
From same direction - both going straight - one stopped - rear-end
From same direction - both going straight - both moving - sideswipe
From same direction - both going straight - both moving - rear-end
From opposite direction - one left turn - one straight
Fixed object
Entering at angle
N
ESQUATZEL COULEE
West Pasco
Pasco
0
0.5
1
2 Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Top 6 Crash types along the Corridor:



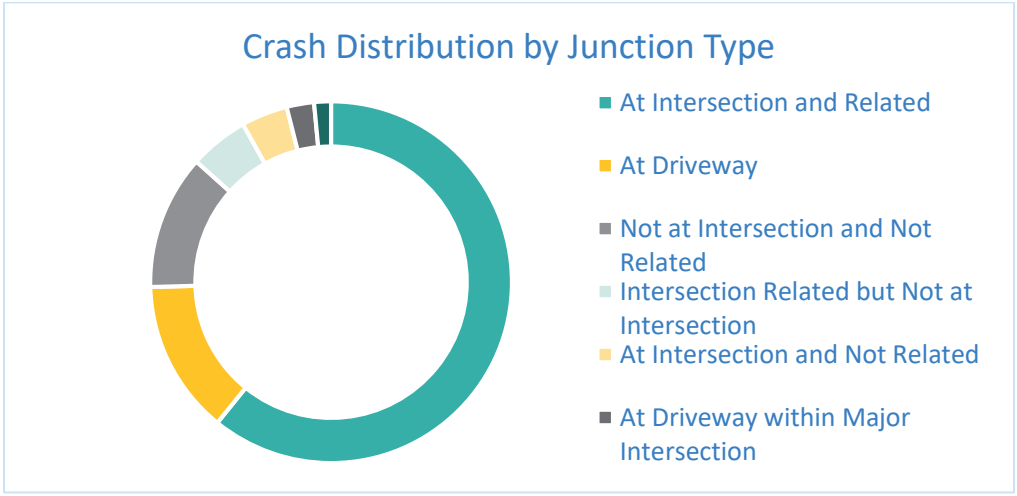

Reasons for Collison Type:

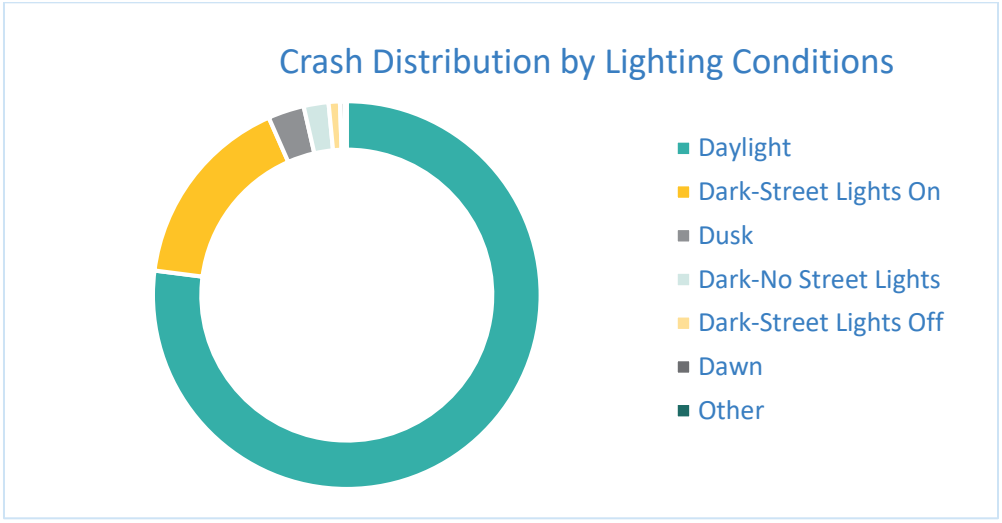
| COLLISON TYPE | NUMBER OF CRASHES |
|---|---|
| ENTERING AT ANGLE | 185 |
| ➢ DID NOT GRANT RW TO VEHICLE | 66 |
| ➢ INATTENTION | 50 |
| ➢ DISREGARD STOP AND GO LIGHT | 19 |
| ➢ IMPROPER TURN | 14 |
| ➢ DISREGARD STOP SIGN - FLASHING RED | 8 |
| ➢ NONE | 7 |
| ➢ OTHER | 6 |

| | |
|---|---|
| ➢ EXCEEDING REAS. SAFE SPEED | 5 |
| ➢ UNKNOWN DRIVER DISTRACTION | 5 |
| ➢ UNDER INFLUENCE OF ALCOHOL | 1 |
| ➢ OTHER DRIVER DISTRACTIONS INSIDE VEHICLE | 1 |
| ➢ DRIVER DISTRACTIONS OUTSIDE VEHICLE | 1 |
| ➢ DRIVER NOT DISTRACTED | 1 |
| ➢ IMPROPER BACKING | 1 |
| FROM SAME DIRECTION - BOTH GOING STRAIGHT - ONE STOPPED - REAR-END | 126 |
| ➢ FOLLOW TOO CLOSELY | 56 |
| ➢ INATTENTION | 35 |
| ➢ OPERATING DEFECTIVE EQUIPMENT | 7 |
| ➢ OTHER | 6 |
| ➢ NONE | 5 |
| ➢ EXCEEDING REAS. SAFE SPEED | 4 |
| ➢ DID NOT GRANT RW TO VEHICLE | 2 |
| ➢ UNKNOWN DRIVER DISTRACTION | 2 |
| ➢ APPARENTLY ASLEEP | 1 |
| ➢ DRIVER OPERATING HANDHELD TELECOMMUNICAT | 1 |
| ➢ DRIVER NOT DISTRACTED | 1 |
| ➢ APPARENTLY FATIGUED | 1 |
| ➢ UNDER INFLUENCE OF ALCOHOL | 1 |
| ➢ DRIVER DISTRACTIONS OUTSIDE VEHICLE | 1 |
| ➢ DRIVER INTERACTING WITH PASSENGERS, ANIM | 1 |
| ➢ DRIVER OPERATING OTHER ELECTRONIC DEVICE | 1 |
| ➢ DRIVER READING OR WRITING | 1 |
| FROM OPPOSITE DIRECTION - ONE LEFT TURN - ONE STRAIGHT | 65 |
| ➢ DID NOT GRANT RW TO VEHICLE | 27 |
| ➢ IMPROPER TURN | 12 |
| ➢ INATTENTION | 10 |
| ➢ NONE | 6 |
| ➢ OTHER | 3 |
| ➢ UNDER INFLUENCE OF ALCOHOL | 2 |

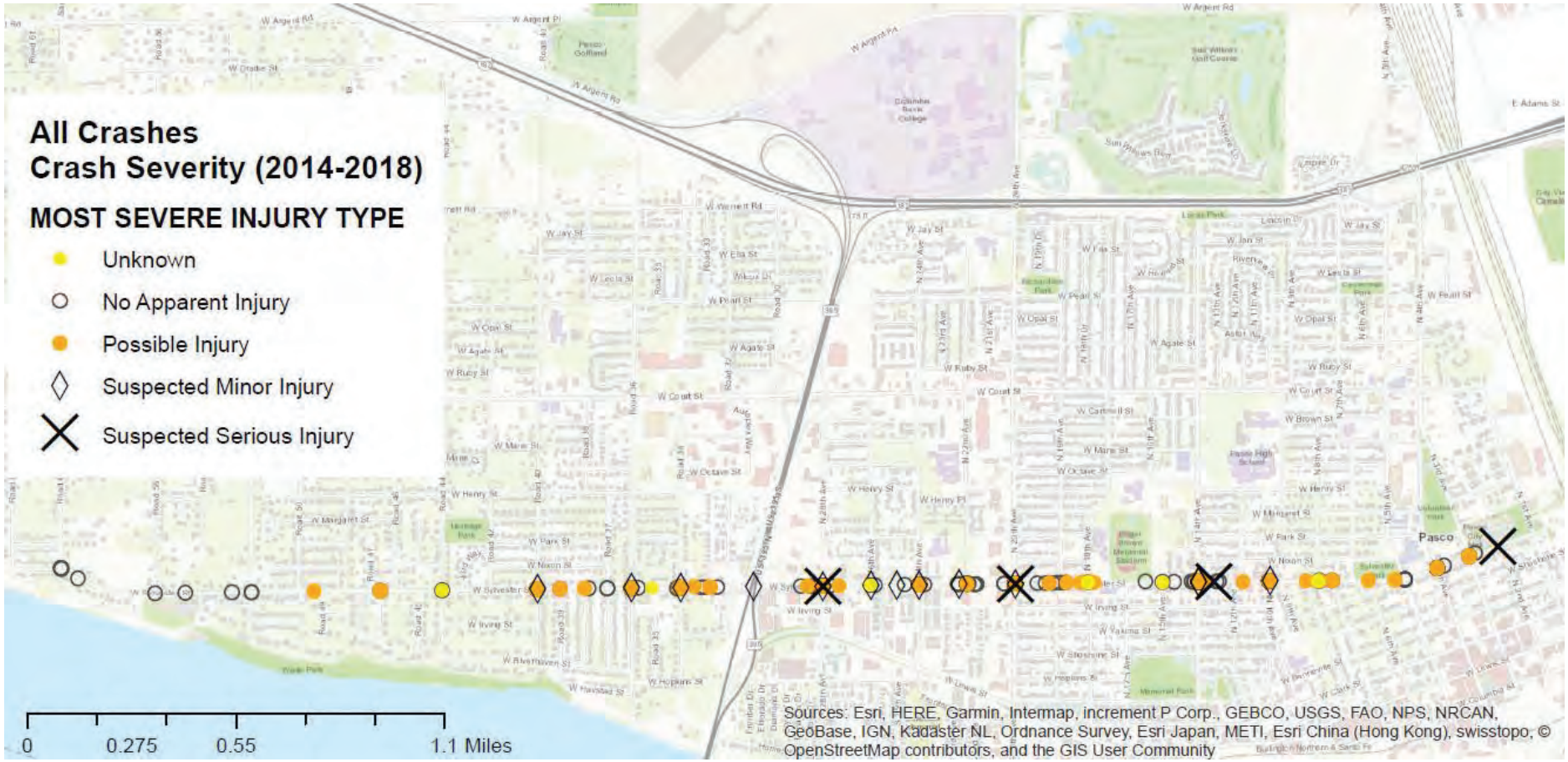
| | |
|---|---|
| ➢ DISREGARD STOP AND GO LIGHT | 2 |
| ➢ DISREGARD YIELD SIGN - FLASHING YELLOW | 2 |
| ➢ DISREGARD STOP SIGN - FLASHING RED | 1 |

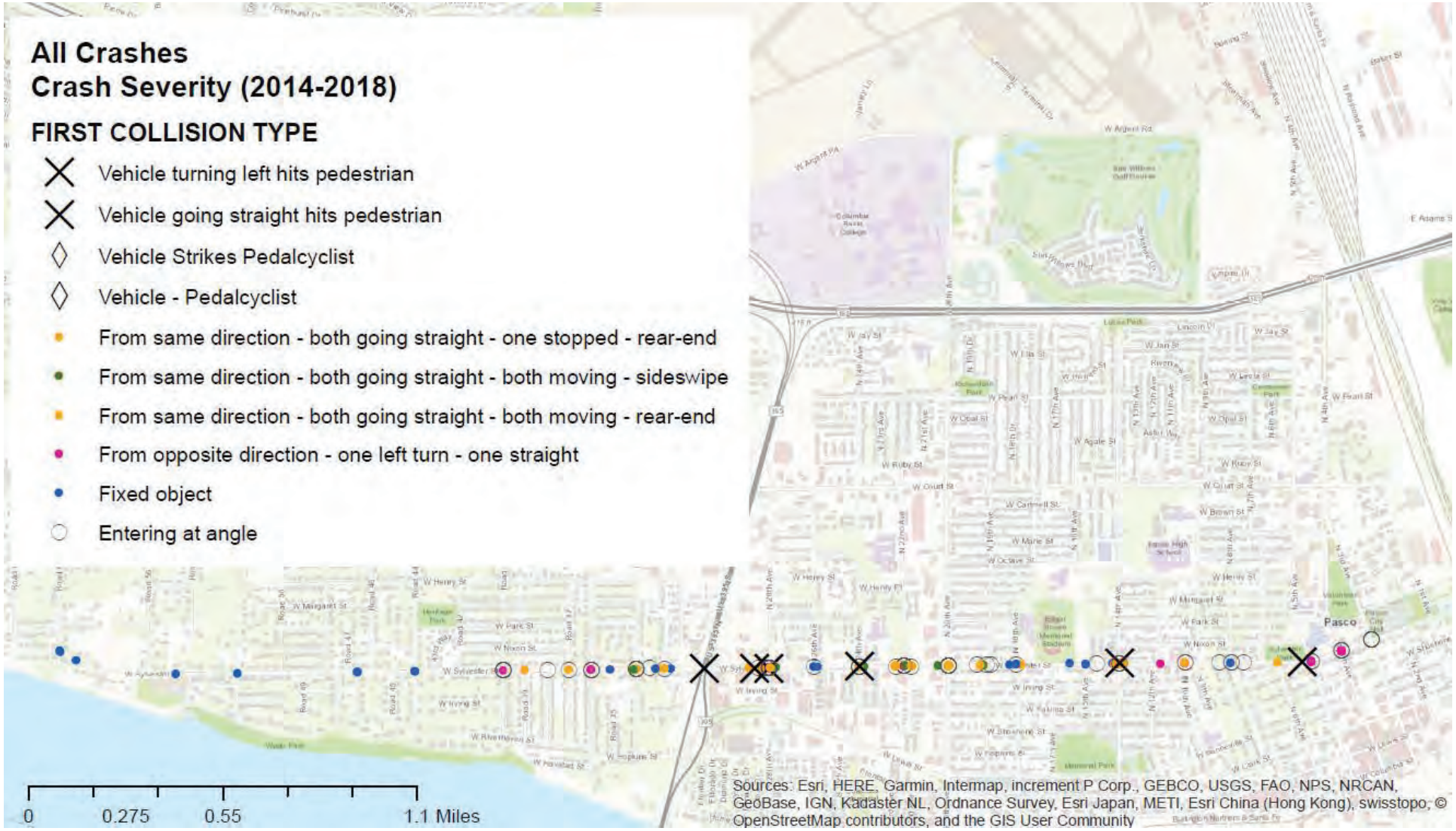
Other Crash Data:



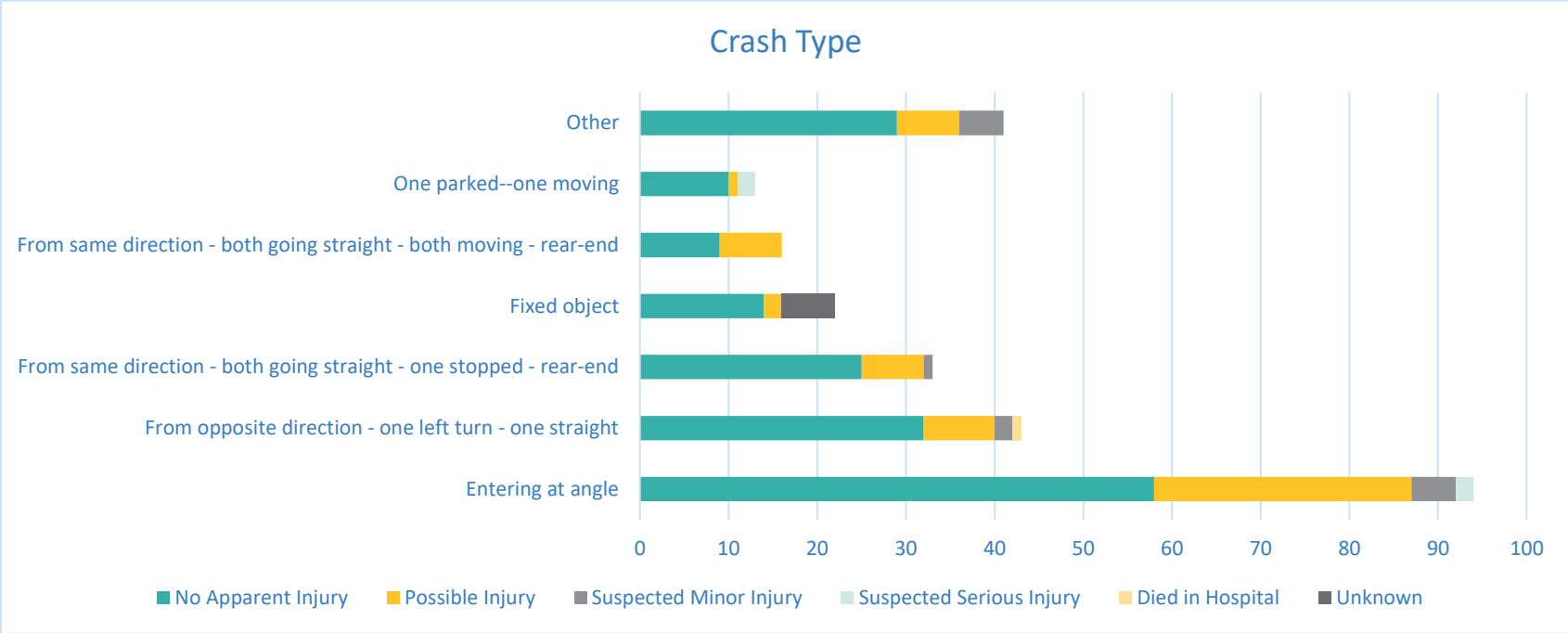



## SYLVESTER ST

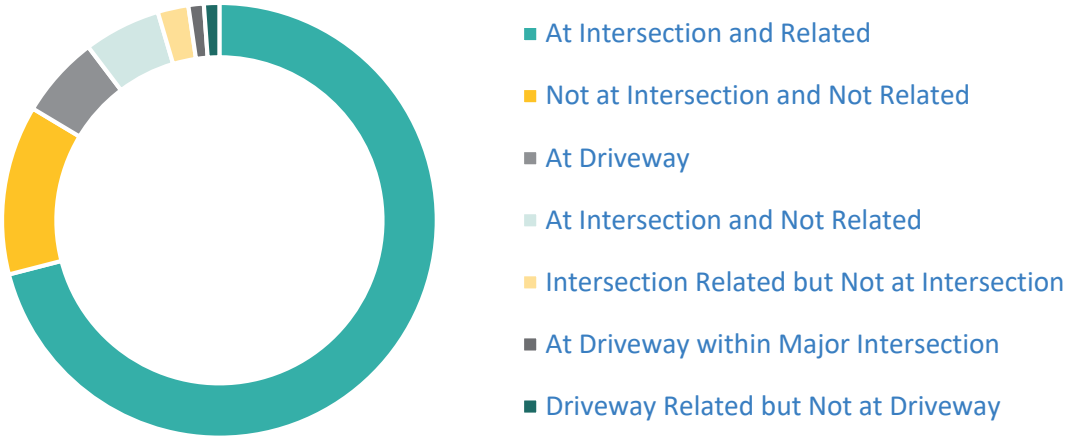



All Crashes
Crash Severity (2014-2018)
FIRST COLLISION TYPE
Vehicle turning left hits pedestrian
Vehicle going straight hits pedestrian
Vehicle Strikes Pedalcyclist
Vehicle - Pedalcyclist
From same direction - both going straight - one stopped - rear-end
From same direction - both going straight - both moving - sideswipe
From same direction - both going straight - both moving - rear-end
From opposite direction - one left turn - one straight
Fixed object
Entering at angle
0
0.275
0.55
1.1 Miles
Pasco
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

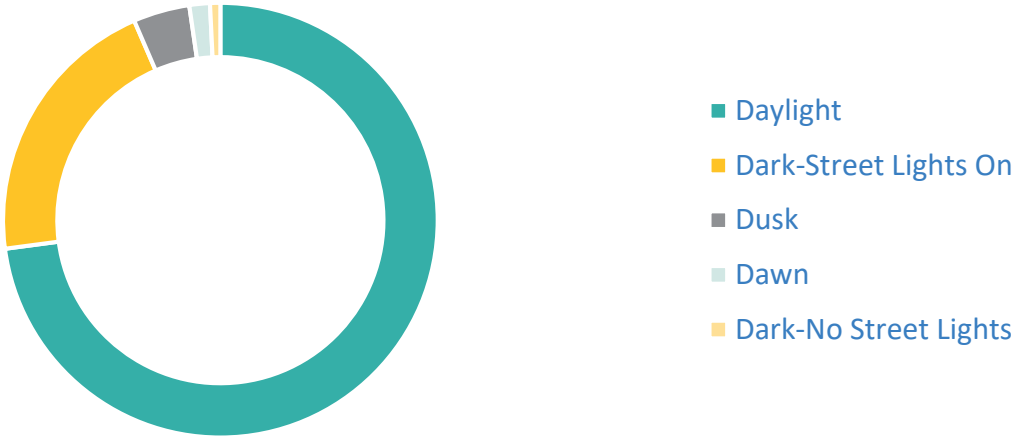
Top 6 Crash types along the Sylvester Corridor:



## Crash Distribution by Junction Type




## Crash Distribution by Lighting Conditions



# HCM 6th Signalized Intersection Summary
## 1: Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp

04/14/2020

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 220 | 0 | 185 | 0 | 631 | 559 | 0 | 502 | 839 |
| Future Volume (veh/h) | 0 | 0 | 0 | 220 | 0 | 185 | 0 | 631 | 559 | 0 | 502 | 839 |
| 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 | | | | 1856 | 0 | 1781 | 0 | 1781 | 1885 | 0 | 1811 | 1856 |
| Adj Flow Rate, veh/h | | | | 250 | 0 | 210 | 0 | 717 | 0 | 0 | 570 | 0 |
| Peak Hour Factor | | | | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | | | | 3 | 0 | 8 | 0 | 8 | 1 | 0 | 6 | 3 |
| Cap, veh/h | | | | 295 | 0 | 252 | 0 | 2430 | | 0 | 2470 | |
| Arrive On Green | | | | 0.17 | 0.00 | 0.17 | 0.00 | 0.24 | 0.00 | 0.00 | 0.72 | 0.00 |
| Sat Flow, veh/h | | | | 1767 | 0 | 1510 | 0 | 3474 | 1598 | 0 | 3532 | 1572 |
| Grp Volume(v), veh/h | | | | 250 | 0 | 210 | 0 | 717 | 0 | 0 | 570 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1767 | 0 | 1510 | 0 | 1692 | 1598 | 0 | 1721 | 1572 |
| Q Serve(g_s), s | | | | 11.0 | 0.0 | 10.8 | 0.0 | 13.9 | 0.0 | 0.0 | 4.5 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 11.0 | 0.0 | 10.8 | 0.0 | 13.9 | 0.0 | 0.0 | 4.5 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 295 | 0 | 252 | 0 | 2430 | | 0 | 2470 | |
| V/C Ratio(X) | | | | 0.85 | 0.00 | 0.83 | 0.00 | 0.30 | | 0.00 | 0.23 | |
| Avail Cap(c_a), veh/h | | | | 539 | 0 | 460 | 0 | 2430 | | 0 | 2470 | |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 0.77 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 32.3 | 0.0 | 32.2 | 0.0 | 13.9 | 0.0 | 0.0 | 3.8 | 0.0 |
| Incr Delay (d2), s/veh | | | | 2.6 | 0.0 | 2.7 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 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 |
| %ile BackOfQ(50%),veh/ln | | | | 4.7 | 0.0 | 3.9 | 0.0 | 6.2 | 0.0 | 0.0 | 1.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 34.9 | 0.0 | 35.0 | 0.0 | 14.2 | 0.0 | 0.0 | 4.0 | 0.0 |
| LnGrp LOS | | | | C | A | C | A | B | | A | A | |
| Approach Vol, veh/h | | | | | 460 | | | 717 | A | | 570 | A |
| Approach Delay, s/veh | | | | | 34.9 | | | 14.2 | | | 4.0 | |
| Approach LOS | | | | | C | | | B | | | A | |

| Timer - Assigned Phs | 2 | | 6 | | 8 | | | |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 62.0 | | 62.0 | | 18.0 | | | |
| Change Period (Y+Rc), s | 4.6 | | 4.6 | | 4.6 | | | |
| Max Green Setting (Gmax), s | 46.4 | | 46.4 | | 24.4 | | | |
| Max Q Clear Time (g_c+I1), s | 15.9 | | 6.5 | | 13.0 | | | |
| Green Ext Time (p_c), s | 4.9 | | 4.2 | | 0.4 | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | 16.3 | |
| HCM 6th LOS | B | |

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 409 | 0 | 319 | 0 | 0 | 0 | 0 | 781 | 345 | 210 | 512 | 0 |
| Future Volume (veh/h) | 409 | 0 | 319 | 0 | 0 | 0 | 0 | 781 | 345 | 210 | 512 | 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 | 1796 | 0 | 1841 | | | | 0 | 1841 | 1870 | 1796 | 1841 | 0 |
| Adj Flow Rate, veh/h | 481 | 0 | 0 | | | | 0 | 919 | 406 | 247 | 602 | 0 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | | | | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 7 | 0 | 4 | | | | 0 | 4 | 2 | 7 | 4 | 0 |
| Cap, veh/h | 580 | 0 | | | | | 0 | 2006 | 909 | 393 | 1307 | 0 |
| Arrive On Green | 0.17 | 0.00 | 0.00 | | | | 0.00 | 0.57 | 0.57 | 0.03 | 0.23 | 0.00 |
| Sat Flow, veh/h | 3319 | 0 | 1560 | | | | 0 | 3589 | 1585 | 1711 | 1841 | 0 |
| Grp Volume(v), veh/h | 481 | 0 | 0 | | | | 0 | 919 | 406 | 247 | 602 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1659 | 0 | 1560 | | | | 0 | 1749 | 1585 | 1711 | 1841 | 0 |
| Q Serve(g_s), s | 11.2 | 0.0 | 0.0 | | | | 0.0 | 12.2 | 11.7 | 4.1 | 22.5 | 0.0 |
| Cycle Q Clear(g_c), s | 11.2 | 0.0 | 0.0 | | | | 0.0 | 12.2 | 11.7 | 4.1 | 22.5 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 580 | 0 | | | | | 0 | 2006 | 909 | 393 | 1307 | 0 |
| V/C Ratio(X) | 0.83 | 0.00 | | | | | 0.00 | 0.46 | 0.45 | 0.63 | 0.46 | 0.00 |
| Avail Cap(c_a), veh/h | 1054 | 0 | | | | | 0 | 2006 | 909 | 565 | 1307 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 0.33 | 0.33 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 1.00 | 1.00 | 0.92 | 0.92 | 0.00 |
| Uniform Delay (d), s/veh | 31.9 | 0.0 | 0.0 | | | | 0.0 | 9.9 | 9.8 | 9.0 | 17.5 | 0.0 |
| Incr Delay (d2), s/veh | 1.2 | 0.0 | 0.0 | | | | 0.0 | 0.8 | 1.6 | 0.6 | 1.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.4 | 0.0 | 0.0 | | | | 0.0 | 3.9 | 3.6 | 1.2 | 11.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 33.0 | 0.0 | 0.0 | | | | 0.0 | 10.6 | 11.4 | 9.5 | 18.6 | 0.0 |
| LnGrp LOS | C | A | | | | | A | B | B | A | B | A |
| Approach Vol, veh/h | | 481 | A | | | | | 1325 | | | 849 | |
| Approach Delay, s/veh | | 33.0 | | | | | | 10.9 | | | 15.9 | |
| Approach LOS | | C | | | | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 4 | 6 |
|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.9 | 50.5 | 18.6 | 61.4 |
| Change Period (Y+Rc), s | 4.6 | 4.6 | 4.6 | 4.6 |
| Max Green Setting (Gmax), s | 14.4 | 26.4 | 25.4 | 45.4 |
| Max Q Clear Time (g_c+I1), s | 6.1 | 14.2 | 13.2 | 24.5 |
| Green Ext Time (p_c), s | 0.2 | 5.8 | 0.8 | 3.6 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 16.5 |
| HCM 6th LOS | B |

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 193 | 3 | 463 | 0 | 620 | 329 | 0 | 1231 | 667 |
| Future Volume (veh/h) | 0 | 0 | 0 | 193 | 3 | 463 | 0 | 620 | 329 | 0 | 1231 | 667 |
| 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 | | | | 1826 | 1826 | 1826 | 0 | 1856 | 1856 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 212 | 3 | 509 | 0 | 681 | 0 | 0 | 1353 | 0 |
| Peak Hour Factor | | | | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | | | | 5 | 5 | 5 | 0 | 3 | 3 | 0 | 2 | 2 |
| Cap, veh/h | | | | 1229 | 665 | 564 | 0 | 1662 | | 0 | 1675 | |
| Arrive On Green | | | | 0.36 | 0.36 | 0.36 | 0.00 | 0.63 | 0.00 | 0.00 | 0.47 | 0.00 |
| Sat Flow, veh/h | | | | 3374 | 1826 | 1547 | 0 | 3618 | 1572 | 0 | 3647 | 1585 |
| Grp Volume(v), veh/h | | | | 212 | 3 | 509 | 0 | 681 | 0 | 0 | 1353 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1687 | 1826 | 1547 | 0 | 1763 | 1572 | 0 | 1777 | 1585 |
| Q Serve(g_s), s | | | | 2.4 | 0.1 | 17.5 | 0.0 | 5.4 | 0.0 | 0.0 | 18.2 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 2.4 | 0.1 | 17.5 | 0.0 | 5.4 | 0.0 | 0.0 | 18.2 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 1229 | 665 | 564 | 0 | 1662 | | 0 | 1675 | |
| V/C Ratio(X) | | | | 0.17 | 0.00 | 0.90 | 0.00 | 0.41 | | 0.00 | 0.81 | |
| Avail Cap(c_a), veh/h | | | | 1410 | 763 | 647 | 0 | 1662 | | 0 | 1675 | |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 1.00 | 1.00 | 0.00 | 0.86 | 0.00 | 0.00 | 0.53 | 0.00 |
| Uniform Delay (d), s/veh | | | | 12.1 | 11.3 | 16.9 | 0.0 | 6.5 | 0.0 | 0.0 | 12.6 | 0.0 |
| Incr Delay (d2), s/veh | | | | 0.0 | 0.0 | 14.4 | 0.0 | 0.6 | 0.0 | 0.0 | 2.3 | 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(50%),veh/ln | | | | 0.8 | 0.0 | 7.6 | 0.0 | 1.6 | 0.0 | 0.0 | 6.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 12.1 | 11.3 | 31.2 | 0.0 | 7.2 | 0.0 | 0.0 | 15.0 | 0.0 |
| LnGrp LOS | | | | B | B | C | A | A | | A | B | |
| Approach Vol, veh/h | | | | | 724 | | | 681 | A | | 1353 | A |
| Approach Delay, s/veh | | | | | 25.6 | | | 7.2 | | | 15.0 | |
| Approach LOS | | | | | C | | | A | | | B | |

| Timer - Assigned Phs | 2 | | 6 | | 8 | | | |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 31.0 | | 31.0 | | 25.0 | | | |
| Change Period (Y+Rc), s | 4.6 | | 4.6 | | 4.6 | | | |
| Max Green Setting (Gmax), s | 23.4 | | 23.4 | | 23.4 | | | |
| Max Q Clear Time (g_c+I1), s | 7.4 | | 20.2 | | 19.5 | | | |
| Green Ext Time (p_c), s | 2.8 | | 2.7 | | 0.9 | | | |

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

| Notes |
|---|
| User approved pedestrian interval to be less than phase max green. |
| Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay. |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 287 | 0 | 131 | 0 | 0 | 0 | 0 | 662 | 361 | 0 | 539 | 885 |
| Future Volume (veh/h) | 287 | 0 | 131 | 0 | 0 | 0 | 0 | 662 | 361 | 0 | 539 | 885 |
| 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 | 1856 | 0 | 1856 | | | | 0 | 1856 | 1856 | 0 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 305 | 0 | 0 | | | | 0 | 704 | 384 | 0 | 573 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | | | | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 3 | 0 | 3 | | | | 0 | 3 | 3 | 0 | 4 | 4 |
| Cap, veh/h | 432 | 0 | | | | | 0 | 1535 | 836 | 0 | 2438 | |
| Arrive On Green | 0.13 | 0.00 | 0.00 | | | | 0.00 | 0.70 | 0.70 | 0.00 | 1.00 | 0.00 |
| Sat Flow, veh/h | 3428 | 0 | 1572 | | | | 0 | 2295 | 1200 | 0 | 3589 | 1560 |
| Grp Volume(v), veh/h | 305 | 0 | 0 | | | | 0 | 563 | 525 | 0 | 573 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1714 | 0 | 1572 | | | | 0 | 1763 | 1640 | 0 | 1749 | 1560 |
| Q Serve(g_s), s | 4.8 | 0.0 | 0.0 | | | | 0.0 | 8.0 | 8.0 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 4.8 | 0.0 | 0.0 | | | | 0.0 | 8.0 | 8.0 | 0.0 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.73 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 432 | 0 | | | | | 0 | 1229 | 1143 | 0 | 2438 | |
| V/C Ratio(X) | 0.71 | 0.00 | | | | | 0.00 | 0.46 | 0.46 | 0.00 | 0.24 | |
| Avail Cap(c_a), veh/h | 1433 | 0 | | | | | 0 | 1229 | 1143 | 0 | 2438 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.67 | 1.67 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 1.00 | 1.00 | 0.00 | 0.65 | 0.00 |
| Uniform Delay (d), s/veh | 23.5 | 0.0 | 0.0 | | | | 0.0 | 3.8 | 3.8 | 0.0 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.8 | 0.0 | 0.0 | | | | 0.0 | 1.2 | 1.3 | 0.0 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.8 | 0.0 | 0.0 | | | | 0.0 | 1.9 | 1.8 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 24.3 | 0.0 | 0.0 | | | | 0.0 | 5.0 | 5.1 | 0.0 | 0.1 | 0.0 |
| LnGrp LOS | C | A | | | | | A | A | A | A | A | |
| Approach Vol, veh/h | | 305 | A | | | | | 1088 | | | 573 | A |
| Approach Delay, s/veh | | 24.3 | | | | | | 5.1 | | | 0.1 | |
| Approach LOS | | C | | | | | | A | | | A | |

| Timer - Assigned Phs | 2 | 4 | 6 |
|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 44.3 | 11.7 | 44.3 |
| Change Period (Y+Rc), s | 5.3 | 4.6 | 5.3 |
| Max Green Setting (Gmax), s | 22.7 | 23.4 | 22.7 |
| Max Q Clear Time (g_c+I1), s | 10.0 | 6.8 | 2.0 |
| Green Ext Time (p_c), s | 4.3 | 0.3 | 3.1 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 818 | 102 | 42 | 165 | 3 | 154 | 3 | 385 | 3 | 0 | 0 |
| Future Volume (veh/h) | 1 | 818 | 102 | 42 | 165 | 3 | 154 | 3 | 385 | 3 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 1 | 1010 | 0 | 52 | 204 | 4 | 190 | 4 | 0 | 4 | 0 | 0 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 7 | 7 | 7 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 634 | 1476 | | 346 | 1627 | 32 | 382 | 401 | | 161 | 24 | 0 |
| Arrive On Green | 0.00 | 0.42 | 0.00 | 0.06 | 0.48 | 0.48 | 0.11 | 0.21 | 0.00 | 0.01 | 0.00 | 0.00 |
| Sat Flow, veh/h | 1781 | 3554 | 1585 | 1711 | 3424 | 67 | 3456 | 1870 | 1585 | 1435 | 1900 | 0 |
| Grp Volume(v), veh/h | 1 | 1010 | 0 | 52 | 101 | 107 | 190 | 4 | 0 | 4 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1585 | 1711 | 1706 | 1784 | 1728 | 1870 | 1585 | 1435 | 1900 | 0 |
| Q Serve(g_s), s | 0.0 | 11.7 | 0.0 | 0.8 | 1.7 | 1.7 | 2.6 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 0.0 | 11.7 | 0.0 | 0.8 | 1.7 | 1.7 | 2.6 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 634 | 1476 | | 346 | 811 | 848 | 382 | 401 | | 161 | 24 | 0 |
| V/C Ratio(X) | 0.00 | 0.68 | | 0.15 | 0.13 | 0.13 | 0.50 | 0.01 | | 0.02 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 1335 | 2603 | | 918 | 1250 | 1307 | 2052 | 1651 | | 427 | 376 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.6 | 12.1 | 0.0 | 8.6 | 7.4 | 7.4 | 21.1 | 15.6 | 0.0 | 24.7 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.6 | 0.0 | 0.1 | 0.1 | 0.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 3.5 | 0.0 | 0.2 | 0.4 | 0.5 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 8.6 | 12.6 | 0.0 | 8.7 | 7.5 | 7.5 | 21.5 | 15.6 | 0.0 | 24.7 | 0.0 | 0.0 |
| LnGrp LOS | A | B | | A | A | A | C | B | | C | A | A |
| Approach Vol, veh/h | | 1011 | A | | 260 | | | 194 | A | | 4 | |
| Approach Delay, s/veh | | 12.6 | | | 7.7 | | | 21.4 | | | 24.7 | |
| Approach LOS | | B | | | A | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.2 | 26.4 | 10.2 | 5.7 | 5.2 | 29.4 | | 15.9 |
| Change Period (Y+Rc), s | 5.1 | 5.4 | 4.6 | 5.1 | 5.1 | 5.4 | | 5.1 |
| Max Green Setting (Gmax), s | 20.0 | 37.0 | 30.0 | 10.0 | 20.0 | 37.0 | | 44.6 |
| Max Q Clear Time (g_c+I1), s | 12.8 | 13.7 | 4.6 | 2.1 | 2.0 | 3.7 | | 2.1 |
| Green Ext Time (p_c), s | 0.0 | 7.3 | 0.3 | 0.0 | 0.0 | 1.1 | | 0.0 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 605 | 373 | 0 | 398 | 193 | 0 | 0 | 0 | 255 | 0 | 285 |
| Future Volume (veh/h) | 0 | 605 | 373 | 0 | 398 | 193 | 0 | 0 | 0 | 255 | 0 | 285 |
| 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 | 0 | 1856 | 1856 | 0 | 1856 | 1856 | | | | 1870 | 0 | 1870 |
| Adj Flow Rate, veh/h | 0 | 747 | 0 | 0 | 491 | 0 | | | | 315 | 0 | 352 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | | | | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 0 | 3 | 3 | 0 | 3 | 3 | | | | 2 | 0 | 2 |
| Cap, veh/h | 0 | 1508 | | 0 | 1508 | | | | | 514 | 0 | 457 |
| Arrive On Green | 0.00 | 0.43 | 0.00 | 0.00 | 0.43 | 0.00 | | | | 0.29 | 0.00 | 0.29 |
| Sat Flow, veh/h | 0 | 3711 | 0 | 0 | 3711 | 0 | | | | 1781 | 0 | 1585 |
| Grp Volume(v), veh/h | 0 | 747 | 0 | 0 | 491 | 0 | | | | 315 | 0 | 352 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1763 | 0 | 0 | 1763 | 0 | | | | 1781 | 0 | 1585 |
| Q Serve(g_s), s | 0.0 | 5.4 | 0.0 | 0.0 | 3.3 | 0.0 | | | | 5.4 | 0.0 | 7.2 |
| Cycle Q Clear(g_c), s | 0.0 | 5.4 | 0.0 | 0.0 | 3.3 | 0.0 | | | | 5.4 | 0.0 | 7.2 |
| Prop In Lane | 0.00 | | 0.00 | 0.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1508 | | 0 | 1508 | | | | | 514 | 0 | 457 |
| V/C Ratio(X) | 0.00 | 0.50 | | 0.00 | 0.33 | | | | | 0.61 | 0.00 | 0.77 |
| Avail Cap(c_a), veh/h | 0 | 5502 | | 0 | 5502 | | | | | 1264 | 0 | 1124 |
| 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 | 7.3 | 0.0 | 0.0 | 6.7 | 0.0 | | | | 10.8 | 0.0 | 11.5 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.4 | 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 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.3 | 0.0 | 0.0 | 0.8 | 0.0 | | | | 1.5 | 0.0 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 0.0 | 7.4 | 0.0 | 0.0 | 6.8 | 0.0 | | | | 11.3 | 0.0 | 12.5 |
| LnGrp LOS | A | A | | A | A | | | | | B | A | B |
| Approach Vol, veh/h | | 747 | A | | 491 | A | | | | | 667 | |
| Approach Delay, s/veh | | 7.4 | | | 6.8 | | | | | | 11.9 | |
| Approach LOS | | A | | | A | | | | | | B | |

| Timer - Assigned Phs | 2 | 4 | 6 |
|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.1 | 15.2 | 20.1 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 55.0 | 25.0 | 55.0 |
| Max Q Clear Time (g_c+I1), s | 7.4 | 9.2 | 5.3 |
| Green Ext Time (p_c), s | 3.9 | 1.0 | 2.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 8.8 |
| HCM 6th LOS | A |

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 280 | 580 | 0 | 0 | 416 | 428 | 175 | 0 | 213 | 0 | 0 | 0 |
| Future Volume (veh/h) | 280 | 580 | 0 | 0 | 416 | 428 | 175 | 0 | 213 | 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 | 1856 | 1856 | 0 | 0 | 1841 | 1841 | 1870 | 0 | 1870 | | | |
| Adj Flow Rate, veh/h | 318 | 659 | 0 | 0 | 473 | 486 | 199 | 0 | 242 | | | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | | | |
| Percent Heavy Veh, % | 3 | 3 | 0 | 0 | 4 | 4 | 2 | 0 | 2 | | | |
| Cap, veh/h | 559 | 2185 | 0 | 0 | 1324 | 591 | 345 | 0 | 307 | | | |
| Arrive On Green | 0.15 | 0.62 | 0.00 | 0.00 | 0.38 | 0.38 | 0.19 | 0.00 | 0.19 | | | |
| Sat Flow, veh/h | 1767 | 3618 | 0 | 0 | 3589 | 1560 | 1781 | 0 | 1585 | | | |
| Grp Volume(v), veh/h | 318 | 659 | 0 | 0 | 473 | 486 | 199 | 0 | 242 | | | |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 0 | 0 | 1749 | 1560 | 1781 | 0 | 1585 | | | |
| Q Serve(g_s), s | 5.1 | 4.7 | 0.0 | 0.0 | 5.2 | 15.1 | 5.4 | 0.0 | 7.8 | | | |
| Cycle Q Clear(g_c), s | 5.1 | 4.7 | 0.0 | 0.0 | 5.2 | 15.1 | 5.4 | 0.0 | 7.8 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 559 | 2185 | 0 | 0 | 1324 | 591 | 345 | 0 | 307 | | | |
| V/C Ratio(X) | 0.57 | 0.30 | 0.00 | 0.00 | 0.36 | 0.82 | 0.58 | 0.00 | 0.79 | | | |
| Avail Cap(c_a), veh/h | 957 | 3549 | 0 | 0 | 3521 | 1570 | 797 | 0 | 709 | | | |
| 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 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 7.3 | 4.8 | 0.0 | 0.0 | 12.0 | 15.0 | 19.6 | 0.0 | 20.6 | | | |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 1.1 | 0.6 | 0.0 | 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 | | | |
| %ile BackOfQ(50%),veh/ln | 1.4 | 1.1 | 0.0 | 0.0 | 1.8 | 4.7 | 2.0 | 0.0 | 2.7 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 7.6 | 4.8 | 0.0 | 0.0 | 12.0 | 16.2 | 20.2 | 0.0 | 22.3 | | | |
| LnGrp LOS | A | A | A | A | B | B | C | A | C | | | |
| Approach Vol, veh/h | | 977 | | | 959 | | | 441 | | | | |
| Approach Delay, s/veh | | 5.7 | | | 14.1 | | | 21.3 | | | | |
| Approach LOS | | A | | | B | | | C | | | | |
| Timer - Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 38.2 | | | 12.9 | 25.3 | | 15.4 | | | | |
| Change Period (Y+Rc), s | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | | |
| Max Green Setting (Gmax), s | | 54.0 | | | 20.0 | 54.0 | | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 6.7 | | | 7.1 | 17.1 | | 9.8 | | | | |
| Green Ext Time (p_c), s | | 3.4 | | | 0.4 | 3.2 | | 0.6 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 12.0 |
| HCM 6th LOS | B |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 388 | 161 | 0 | 85 | 163 |
| Future Vol, veh/h | 0 | 388 | 161 | 0 | 85 | 163 |
| Conflicting Peds, #/hr | 3 | 0 | 0 | 3 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 3 | 3 | 12 | 12 | 2 | 2 |
| Mvmt Flow | 0 | 456 | 189 | 0 | 100 | 192 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 192 | 0 | - | 0 | 648 | 192 |
| Stage 1 | - | - | - | - | 192 | - |
| Stage 2 | - | - | - | - | 456 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.227 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1375 | - | - | - | 435 | 850 |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 638 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1371 | - | - | - | 432 | 848 |
| Mov Cap-2 Maneuver | - | - | - | - | 432 | - |
| Stage 1 | - | - | - | - | 838 | - |
| Stage 2 | - | - | - | - | 636 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 15.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1371 | - | - | - | 638 |
| HCM Lane V/C Ratio | - | - | - | - | 0.457 |
| HCM Control Delay (s) | 0 | - | - | - | 15.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 2.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 114 | 0 | 259 | 211 | 980 | 0 | 0 | 493 | 229 |
| Future Volume (veh/h) | 0 | 0 | 0 | 114 | 0 | 259 | 211 | 980 | 0 | 0 | 493 | 229 |
| 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 | | | | 1856 | 1856 | 1856 | 1870 | 1870 | 0 | 0 | 1856 | 1856 |
| Adj Flow Rate, veh/h | | | | 144 | 0 | 328 | 267 | 1241 | 0 | 0 | 624 | 290 |
| Peak Hour Factor | | | | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Percent Heavy Veh, % | | | | 3 | 3 | 3 | 2 | 2 | 0 | 0 | 3 | 3 |
| Cap, veh/h | | | | 447 | 0 | 398 | 425 | 2067 | 0 | 0 | 888 | 413 |
| Arrive On Green | | | | 0.25 | 0.00 | 0.25 | 0.12 | 0.58 | 0.00 | 0.00 | 0.38 | 0.38 |
| Sat Flow, veh/h | | | | 1767 | 0 | 1572 | 1781 | 3647 | 0 | 0 | 2429 | 1085 |
| Grp Volume(v), veh/h | | | | 144 | 0 | 328 | 267 | 1241 | 0 | 0 | 471 | 443 |
| Grp Sat Flow(s),veh/h/ln | | | | 1767 | 0 | 1572 | 1781 | 1777 | 0 | 0 | 1763 | 1658 |
| Q Serve(g_s), s | | | | 4.0 | 0.0 | 11.9 | 5.0 | 13.6 | 0.0 | 0.0 | 13.6 | 13.7 |
| Cycle Q Clear(g_c), s | | | | 4.0 | 0.0 | 11.9 | 5.0 | 13.6 | 0.0 | 0.0 | 13.6 | 13.7 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 0.65 |
| Lane Grp Cap(c), veh/h | | | | 447 | 0 | 398 | 425 | 2067 | 0 | 0 | 670 | 631 |
| V/C Ratio(X) | | | | 0.32 | 0.00 | 0.82 | 0.63 | 0.60 | 0.00 | 0.00 | 0.70 | 0.70 |
| Avail Cap(c_a), veh/h | | | | 848 | 0 | 755 | 656 | 2942 | 0 | 0 | 1459 | 1373 |
| 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 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 18.4 | 0.0 | 21.3 | 11.3 | 8.1 | 0.0 | 0.0 | 15.8 | 15.8 |
| Incr Delay (d2), s/veh | | | | 0.3 | 0.0 | 3.3 | 0.6 | 0.3 | 0.0 | 0.0 | 1.4 | 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 |
| %ile BackOfQ(50%),veh/ln | | | | 1.6 | 0.0 | 4.4 | 1.6 | 4.0 | 0.0 | 0.0 | 5.1 | 4.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 18.7 | 0.0 | 24.6 | 11.9 | 8.4 | 0.0 | 0.0 | 17.2 | 17.3 |
| LnGrp LOS | | | | B | A | C | B | A | A | A | B | B |
| Approach Vol, veh/h | | | | | 472 | | | 1508 | | | 914 | |
| Approach Delay, s/veh | | | | | 22.8 | | | 9.0 | | | 17.2 | |
| Approach LOS | | | | | C | | | A | | | B | |

| Timer - Assigned Phs | 2 | | 5 | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 40.1 | | 12.2 | 28.0 | | 20.3 | | | | | | |
| Change Period (Y+Rc), s | 5.0 | | 5.0 | 5.0 | | 5.0 | | | | | | |
| Max Green Setting (Gmax), s | 50.0 | | 15.0 | 50.0 | | 29.0 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 15.6 | | 7.0 | 15.7 | | 13.9 | | | | | | |
| Green Ext Time (p_c), s | 11.9 | | 0.3 | 7.2 | | 1.4 | | | | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 13.9 |
| HCM 6th LOS | | B |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 663 | 335 | 116 | 528 | 440 | 167 |
| Future Volume (veh/h) | 663 | 335 | 116 | 528 | 440 | 167 |
| 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 | 1885 | 1885 | 1856 | 1856 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 850 | 429 | 149 | 677 | 564 | 214 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Percent Heavy Veh, % | 1 | 1 | 3 | 3 | 4 | 4 |
| Cap, veh/h | 1104 | 506 | 414 | 1848 | 830 | 314 |
| Arrive On Green | 0.32 | 0.32 | 0.11 | 0.52 | 0.33 | 0.33 |
| Sat Flow, veh/h | 3483 | 1598 | 1767 | 3618 | 2572 | 939 |
| Grp Volume(v), veh/h | 850 | 429 | 149 | 677 | 397 | 381 |
| Grp Sat Flow(s),veh/h/ln | 1742 | 1598 | 1767 | 1763 | 1749 | 1670 |
| Q Serve(g_s), s | 12.8 | 14.5 | 2.8 | 6.5 | 11.3 | 11.4 |
| Cycle Q Clear(g_c), s | 12.8 | 14.5 | 2.8 | 6.5 | 11.3 | 11.4 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 0.56 |
| Lane Grp Cap(c), veh/h | 1104 | 506 | 414 | 1848 | 585 | 559 |
| V/C Ratio(X) | 0.77 | 0.85 | 0.36 | 0.37 | 0.68 | 0.68 |
| Avail Cap(c_a), veh/h | 1204 | 552 | 678 | 3046 | 1511 | 1443 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.9 | 18.5 | 10.5 | 8.1 | 16.6 | 16.6 |
| Incr Delay (d2), s/veh | 2.9 | 11.1 | 0.2 | 0.1 | 1.4 | 1.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.0 | 13.2 | 0.9 | 2.0 | 4.2 | 4.1 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 20.7 | 29.5 | 10.7 | 8.2 | 18.0 | 18.1 |
| LnGrp LOS | C | C | B | A | B | B |
| Approach Vol, veh/h | 1279 | | | 826 | 778 | |
| Approach Delay, s/veh | 23.7 | | | 8.7 | 18.0 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 34.9 | | 22.9 | 11.0 | 24.0 |
| Change Period (Y+Rc), s | | 4.6 | | 4.6 | 4.6 | 4.6 |
| Max Green Setting (Gmax), s | | 50.0 | | 20.0 | 15.0 | 50.0 |
| Max Q Clear Time (g_c+I1), s | | 8.5 | | 16.5 | 4.8 | 13.4 |
| Green Ext Time (p_c), s | | 5.5 | | 1.8 | 0.1 | 5.9 |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 17.8 |
| HCM 6th LOS | | B |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 42 | 111 | 140 | 243 | 202 | 100 |
| Future Volume (veh/h) | 42 | 111 | 140 | 243 | 202 | 100 |
| 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 | 1633 | 1633 | 1781 | 1781 | 1707 | 1707 |
| Adj Flow Rate, veh/h | 44 | 117 | 147 | 256 | 213 | 105 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 18 | 18 | 8 | 8 | 13 | 13 |
| Cap, veh/h | 333 | 297 | 538 | 971 | 302 | 149 |
| Arrive On Green | 0.21 | 0.21 | 0.14 | 0.54 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1555 | 1384 | 1697 | 1781 | 1079 | 532 |
| Grp Volume(v), veh/h | 44 | 117 | 147 | 256 | 0 | 318 |
| Grp Sat Flow(s),veh/h/ln | 1555 | 1384 | 1697 | 1781 | 0 | 1612 |
| Q Serve(g_s), s | 0.9 | 2.8 | 1.9 | 2.9 | 0.0 | 6.8 |
| Cycle Q Clear(g_c), s | 0.9 | 2.8 | 1.9 | 2.9 | 0.0 | 6.8 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 0.33 |
| Lane Grp Cap(c), veh/h | 333 | 297 | 538 | 971 | 0 | 451 |
| V/C Ratio(X) | 0.13 | 0.39 | 0.27 | 0.26 | 0.00 | 0.71 |
| Avail Cap(c_a), veh/h | 1221 | 1087 | 1180 | 1399 | 0 | 1265 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 12.1 | 12.9 | 6.9 | 4.6 | 0.0 | 12.3 |
| Incr Delay (d2), s/veh | 0.1 | 0.6 | 0.1 | 0.1 | 0.0 | 2.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.1 | 0.4 | 0.6 | 0.0 | 2.1 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 12.3 | 13.5 | 7.0 | 4.8 | 0.0 | 14.4 |
| LnGrp LOS | B | B | A | A | A | B |
| Approach Vol, veh/h | 161 | | | 403 | 318 | |
| Approach Delay, s/veh | 13.2 | | | 5.6 | 14.4 | |
| Approach LOS | B | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 25.4 | | 12.8 | 10.1 | 15.3 |
| Change Period (Y+Rc), s | | 4.6 | | 4.6 | 4.6 | 4.6 |
| Max Green Setting (Gmax), s | | 30.0 | | 30.0 | 20.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | | 4.9 | | 4.8 | 3.9 | 8.8 |
| Green Ext Time (p_c), s | | 1.5 | | 0.4 | 0.2 | 2.0 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 131 | 458 | 154 | 252 | 247 | 66 |
| Future Volume (veh/h) | 131 | 458 | 154 | 252 | 247 | 66 |
| 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 | 1811 | 1811 | 1767 | 1767 | 1707 | 1707 |
| Adj Flow Rate, veh/h | 154 | 539 | 181 | 296 | 291 | 78 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 6 | 6 | 9 | 9 | 13 | 13 |
| Cap, veh/h | 672 | 598 | 394 | 774 | 407 | 343 |
| Arrive On Green | 0.39 | 0.39 | 0.11 | 0.44 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1725 | 1535 | 1682 | 1767 | 1707 | 1441 |
| Grp Volume(v), veh/h | 154 | 539 | 181 | 296 | 291 | 78 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1535 | 1682 | 1767 | 1707 | 1441 |
| Q Serve(g_s), s | 3.5 | 19.2 | 4.3 | 6.6 | 9.1 | 2.5 |
| Cycle Q Clear(g_c), s | 3.5 | 19.2 | 4.3 | 6.6 | 9.1 | 2.5 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Lane Grp Cap(c), veh/h | 672 | 598 | 394 | 774 | 407 | 343 |
| V/C Ratio(X) | 0.23 | 0.90 | 0.46 | 0.38 | 0.72 | 0.23 |
| Avail Cap(c_a), veh/h | 891 | 793 | 781 | 912 | 1046 | 883 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 11.9 | 16.7 | 13.6 | 11.0 | 20.3 | 17.8 |
| Incr Delay (d2), s/veh | 0.1 | 10.3 | 0.3 | 0.3 | 2.4 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 15.7 | 1.4 | 2.3 | 3.6 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 12.0 | 27.0 | 13.9 | 11.3 | 22.7 | 18.2 |
| LnGrp LOS | B | C | B | B | C | B |
| Approach Vol, veh/h | 693 | | | 477 | 369 | |
| Approach Delay, s/veh | 23.7 | | | 12.3 | 21.7 | |
| Approach LOS | C | | | B | C | |

| Timer - Assigned Phs | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 30.5 | | 27.6 | 11.6 | 18.8 |
| Change Period (Y+Rc), s | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 30.0 | | 30.0 | 20.0 | 35.6 |
| Max Q Clear Time (g_c+I1), s | 8.6 | | 21.2 | 6.3 | 11.1 |
| Green Ext Time (p_c), s | 1.7 | | 1.4 | 0.2 | 2.0 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 8 | 2 | 59 | 6 | 5 | 6 | 202 | 591 | 6 | 5 | 446 | 13 |
| Future Vol, veh/h | 8 | 2 | 59 | 6 | 5 | 6 | 202 | 591 | 6 | 5 | 446 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 250 | - | - | 200 | - | - |
| 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, % | 20 | 20 | 20 | 36 | 36 | 36 | 21 | 21 | 21 | 25 | 25 | 25 |
| Mvmt Flow | 9 | 2 | 63 | 6 | 5 | 6 | 215 | 629 | 6 | 5 | 474 | 14 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1238 | 1556 | 244 | 1310 | 1560 | 318 | 488 | 0 | 0 | 635 | 0 | 0 |
| Stage 1 | 491 | 491 | - | 1062 | 1062 | - | - | - | - | - | - | - |
| Stage 2 | 747 | 1065 | - | 248 | 498 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.9 | 6.9 | 7.3 | 8.22 | 7.22 | 7.62 | 4.52 | - | - | 4.6 | - | - |
| Critical Hdwy Stg 1 | 6.9 | 5.9 | - | 7.22 | 6.22 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.9 | 5.9 | - | 7.22 | 6.22 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.7 | 4.2 | 3.5 | 3.86 | 4.36 | 3.66 | 2.41 | - | - | 2.45 | - | - |
| Pot Cap-1 Maneuver | 114 | 94 | 704 | 87 | 80 | 587 | 949 | - | - | 804 | - | - |
| Stage 1 | 483 | 504 | - | 186 | 234 | - | - | - | - | - | - | - |
| Stage 2 | 333 | 261 | - | 646 | 465 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 87 | 72 | 704 | 64 | 61 | 587 | 949 | - | - | 804 | - | - |
| Mov Cap-2 Maneuver | 87 | 72 | - | 64 | 61 | - | - | - | - | - | - | - |
| Stage 1 | 373 | 501 | - | 144 | 181 | - | - | - | - | - | - | - |
| Stage 2 | 247 | 202 | - | 582 | 462 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 18.5 | 54.1 | 2.5 | 0.1 |
| HCM LOS | C | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 949 | - | - | 339 | 91 | 804 | - | - |
| HCM Lane V/C Ratio | 0.226 | - | - | 0.217 | 0.199 | 0.007 | - | - |
| HCM Control Delay (s) | 9.9 | - | - | 18.5 | 54.1 | 9.5 | - | - |
| HCM Lane LOS | A | - | - | C | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.9 | - | - | 0.8 | 0.7 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 59 | 31 | 0 | 86 | 235 | 139 | 0 | 35 | 11 | 27 | 9 | 2 |
| Future Vol, veh/h | 59 | 31 | 0 | 86 | 235 | 139 | 0 | 35 | 11 | 27 | 9 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 190 | - | - | 550 | - | 550 | 200 | - | - | 250 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 26 | 26 | 26 | 22 | 22 | 22 | 38 | 38 | 38 | 24 | 24 | 24 |
| Mvmt Flow | 69 | 36 | 0 | 101 | 276 | 164 | 0 | 41 | 13 | 32 | 11 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 440 | 0 | 0 | 37 | 0 | 0 | 742 | 817 | 37 | 679 | 653 | 276 |
| Stage 1 | - | - | - | - | - | - | 175 | 175 | - | 478 | 478 | - |
| Stage 2 | - | - | - | - | - | - | 567 | 642 | - | 201 | 175 | - |
| Critical Hdwy | 4.36 | - | - | 4.32 | - | - | 7.48 | 6.88 | 6.58 | 7.34 | 6.74 | 6.44 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.48 | 5.88 | - | 6.34 | 5.74 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.48 | 5.88 | - | 6.34 | 5.74 | - |
| Follow-up Hdwy | 2.434 | - | - | 2.398 | - | - | 3.842 | 4.342 | 3.642 | 3.716 | 4.216 | 3.516 |
| Pot Cap-1 Maneuver | 1004 | - | - | 1454 | - | - | 290 | 274 | 941 | 338 | 360 | 713 |
| Stage 1 | - | - | - | - | - | - | 750 | 691 | - | 529 | 520 | - |
| Stage 2 | - | - | - | - | - | - | 450 | 417 | - | 753 | 714 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1004 | - | - | 1453 | - | - | 253 | 237 | 940 | 260 | 311 | 713 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 253 | 237 | - | 260 | 311 | - |
| Stage 1 | - | - | - | - | - | - | 698 | 643 | - | 492 | 484 | - |
| Stage 2 | - | - | - | - | - | - | 408 | 388 | - | 647 | 664 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 5.8 | 1.4 | 20.3 | 19.4 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 289 | 1004 | - | - | 1453 | - | - | 260 | 347 |
| HCM Lane V/C Ratio | - | 0.187 | 0.069 | - | - | 0.07 | - | - | 0.122 | 0.037 |
| HCM Control Delay (s) | 0 | 20.3 | 8.9 | - | - | 7.7 | - | - | 20.8 | 15.8 |
| HCM Lane LOS | A | C | A | - | - | A | - | - | C | C |
| HCM 95th %tile Q(veh) | - | 0.7 | 0.2 | - | - | 0.2 | - | - | 0.4 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 12.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 12 | 13 | 42 | 2 | 80 | 4 | 106 | 45 | 9 | 141 | 149 | 273 |
| Future Vol, veh/h | 12 | 13 | 42 | 2 | 80 | 4 | 106 | 45 | 9 | 141 | 149 | 273 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 250 | - | - | 200 | - | - | 225 | - | - | 260 | - | 110 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 44 | 44 | 44 | 29 | 29 | 29 | 54 | 54 | 54 | 10 | 10 | 10 |
| Mvmt Flow | 14 | 15 | 49 | 2 | 93 | 5 | 123 | 52 | 10 | 164 | 173 | 317 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 98 | 0 | 0 | 64 | 0 | 0 | 413 | 170 | 40 | 199 | 192 | 96 |
| Stage 1 | - | - | - | - | - | - | 68 | 68 | - | 100 | 100 | - |
| Stage 2 | - | - | - | - | - | - | 345 | 102 | - | 99 | 92 | - |
| Critical Hdwy | 4.54 | - | - | 4.39 | - | - | 7.64 | 7.04 | 6.74 | 7.2 | 6.6 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.64 | 6.04 | - | 6.2 | 5.6 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.64 | 6.04 | - | 6.2 | 5.6 | - |
| Follow-up Hdwy | 2.596 | - | - | 2.461 | - | - | 3.986 | 4.486 | 3.786 | 3.59 | 4.09 | 3.39 |
| Pot Cap-1 Maneuver | 1269 | - | - | 1383 | - | - | 468 | 639 | 901 | 743 | 689 | 939 |
| Stage 1 | - | - | - | - | - | - | 827 | 747 | - | 887 | 797 | - |
| Stage 2 | - | - | - | - | - | - | 575 | 720 | - | 888 | 803 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1269 | - | - | 1383 | - | - | 247 | 631 | 901 | 681 | 681 | 939 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 247 | 631 | - | 681 | 681 | - |
| Stage 1 | - | - | - | - | - | - | 818 | 739 | - | 877 | 796 | - |
| Stage 2 | - | - | - | - | - | - | 297 | 719 | - | 807 | 794 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.4 | 0.2 | 25.8 | 11.4 |
| HCM LOS | | | D | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 | SBLn3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 247 | 664 | 1269 | - | - | 1383 | - | - | 681 | 681 | 939 |
| HCM Lane V/C Ratio | 0.499 | 0.095 | 0.011 | - | - | 0.002 | - | - | 0.241 | 0.254 | 0.338 |
| HCM Control Delay (s) | 33.3 | 11 | 7.9 | - | - | 7.6 | - | - | 12 | 12.1 | 10.8 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | B | B | B |
| HCM 95th %tile Q(veh) | 2.6 | 0.3 | 0 | - | - | 0 | - | - | 0.9 | 1 | 1.5 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↱ | ↰ | ↑ | | | ↱ | | ↱ |
| Traffic Vol, veh/h | 0 | 381 | 58 | 61 | 72 | 0 | 0 | 268 | 0 | 0 |
| Future Vol, veh/h | 0 | 381 | 58 | 61 | 72 | 0 | 0 | 268 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | None | - | - |
| Storage Length | - | - | 275 | 350 | - | - | - | 0 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Peak Hour Factor | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 92 | 92 |
| Heavy Vehicles, % | 7 | 7 | 7 | 27 | 27 | 27 | 8 | 8 | 2 | 2 |
| Mvmt Flow | 0 | 501 | 76 | 80 | 95 | 0 | 0 | 353 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | Minor2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | 577 | 0 | 0 | - | 501 | - | 95 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | 4.37 | - | - | - | 6.28 | - | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | 2.443 | - | - | - | 3.372 | - | 3.318 |
| Pot Cap-1 Maneuver | 0 | - | - | 884 | - | 0 | 0 | 558 | 0 | 962 |
| Stage 1 | 0 | - | - | - | - | 0 | 0 | - | 0 | - |
| Stage 2 | 0 | - | - | - | - | 0 | 0 | - | 0 | - |
| Platoon blocked, % | | - | - | | - | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 884 | - | - | - | 558 | - | 962 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SE |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 4.3 | 21.9 | 0 |
| HCM LOS | | | C | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT | SELn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 558 | - | - | 884 | - | - |
| HCM Lane V/C Ratio | 0.632 | - | - | 0.091 | - | - |
| HCM Control Delay (s) | 21.9 | - | - | 9.5 | - | 0 |
| HCM Lane LOS | C | - | - | A | - | A |
| HCM 95th %tile Q(veh) | 4.4 | - | - | 0.3 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 183 | 466 | 0 | 0 | 119 | 176 | 0 | 0 | 74 | 0 | 0 | 14 |
| Future Vol, veh/h | 183 | 466 | 0 | 0 | 119 | 176 | 0 | 0 | 74 | 0 | 0 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 330 | - | - | - | - | 270 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 8 | 8 | 8 | 27 | 27 | 27 | 33 | 33 | 33 | 17 | 17 | 17 |
| Mvmt Flow | 213 | 542 | 0 | 0 | 138 | 205 | 0 | 0 | 86 | 0 | 0 | 16 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 343 | 0 | - | - | - | 0 | - | - | 542 | - | - | 138 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | 4.18 | - | - | - | - | - | - | - | 6.53 | - | - | 6.37 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | 2.272 | - | - | - | - | - | - | - | 3.597 | - | - | 3.453 |
| Pot Cap-1 Maneuver | 1183 | - | 0 | 0 | - | - | 0 | 0 | 485 | 0 | 0 | 872 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1183 | - | - | - | - | - | - | - | 485 | - | - | 872 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.5 | 0 | 14 | 9.2 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 485 | 1183 | - | - | - | 872 |
| HCM Lane V/C Ratio | 0.177 | 0.18 | - | - | - | 0.019 |
| HCM Control Delay (s) | 14 | 8.7 | - | - | - | 9.2 |
| HCM Lane LOS | B | A | - | - | - | A |
| HCM 95th %tile Q(veh) | 0.6 | 0.7 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 96 | 167 | 79 | 734 | 787 | 55 |
| Future Vol, veh/h | 96 | 167 | 79 | 734 | 787 | 55 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Free |
| Storage Length | 0 | - | 290 | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 12 | 12 | 13 | 13 | 18 | 18 |
| Mvmt Flow | 100 | 174 | 82 | 765 | 820 | 57 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1367 | - | 820 | 0 | - | 0 |
| Stage 1 | 820 | - | - | - | - | - |
| Stage 2 | 547 | - | - | - | - | - |
| Critical Hdwy | 7.04 | - | 4.36 | - | - | - |
| Critical Hdwy Stg 1 | 6.04 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.04 | - | - | - | - | - |
| Follow-up Hdwy | 3.62 | - | 2.33 | - | - | - |
| Pot Cap-1 Maneuver | 126 | 0 | 738 | - | - | 0 |
| Stage 1 | 369 | 0 | - | - | - | 0 |
| Stage 2 | 516 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 112 | - | 738 | - | - | - |
| Mov Cap-2 Maneuver | 112 | - | - | - | - | - |
| Stage 1 | 328 | - | - | - | - | - |
| Stage 2 | 516 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 129.2 | 1 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | 738 | - | 112 | - |
| HCM Lane V/C Ratio | 0.112 | - | 0.893 | - |
| HCM Control Delay (s) | 10.5 | - | 129.2 | - |
| HCM Lane LOS | B | - | F | - |
| HCM 95th %tile Q(veh) | 0.4 | - | 5.4 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 24 | 43 | 319 | 875 | 92 | 91 | 265 | 537 | 421 | 62 | 522 | 15 |
| Future Volume (veh/h) | 24 | 43 | 319 | 875 | 92 | 91 | 265 | 537 | 421 | 62 | 522 | 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 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1885 | 1885 | 1885 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 26 | 46 | 343 | 941 | 99 | 98 | 285 | 577 | 0 | 67 | 561 | 16 |
| 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, % | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 241 | 253 | 371 | 1006 | 545 | 461 | 339 | 1259 | | 85 | 1066 | 30 |
| Arrive On Green | 0.14 | 0.14 | 0.14 | 0.29 | 0.29 | 0.29 | 0.10 | 0.36 | 0.00 | 0.05 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1767 | 1856 | 1569 | 3483 | 1885 | 1596 | 3401 | 3497 | 1560 | 1767 | 3500 | 100 |
| Grp Volume(v), veh/h | 26 | 46 | 343 | 941 | 99 | 98 | 285 | 577 | 0 | 67 | 282 | 295 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1569 | 1742 | 1885 | 1596 | 1700 | 1749 | 1560 | 1767 | 1763 | 1837 |
| Q Serve(g_s), s | 1.7 | 2.9 | 18.0 | 34.7 | 5.2 | 6.1 | 10.9 | 16.7 | 0.0 | 5.0 | 17.5 | 17.5 |
| Cycle Q Clear(g_c), s | 1.7 | 2.9 | 18.0 | 34.7 | 5.2 | 6.1 | 10.9 | 16.7 | 0.0 | 5.0 | 17.5 | 17.5 |
| 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 | 241 | 253 | 371 | 1006 | 545 | 461 | 339 | 1259 | | 85 | 537 | 560 |
| V/C Ratio(X) | 0.11 | 0.18 | 0.93 | 0.94 | 0.18 | 0.21 | 0.84 | 0.46 | | 0.79 | 0.53 | 0.53 |
| Avail Cap(c_a), veh/h | 241 | 253 | 371 | 1108 | 600 | 508 | 696 | 1259 | | 187 | 537 | 560 |
| 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 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 50.0 | 50.5 | 49.3 | 45.7 | 35.2 | 35.6 | 58.4 | 32.4 | 0.0 | 62.1 | 38.0 | 38.0 |
| Incr Delay (d2), s/veh | 0.1 | 0.1 | 28.1 | 12.9 | 0.1 | 0.1 | 2.2 | 1.2 | 0.0 | 5.8 | 3.7 | 3.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 1.4 | 13.9 | 16.8 | 2.4 | 2.4 | 4.8 | 7.2 | 0.0 | 2.4 | 8.1 | 8.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 50.0 | 50.6 | 77.4 | 58.7 | 35.3 | 35.6 | 60.5 | 33.6 | 0.0 | 68.0 | 41.7 | 41.5 |
| LnGrp LOS | D | D | E | E | D | D | E | C | | E | D | D |
| Approach Vol, veh/h | | 415 | | | 1138 | | | 862 | A | | 644 | |
| Approach Delay, s/veh | | 72.7 | | | 54.6 | | | 42.5 | | | 44.3 | |
| Approach LOS | | E | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 19.2 | 45.7 | | 43.6 | 11.9 | 53.0 | | 23.5 | | | | |
| Change Period (Y+Rc), s | 6.0 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 27.0 | 34.0 | | 42.0 | 14.0 | 47.5 | | 18.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 12.9 | 19.5 | | 36.7 | 7.0 | 18.7 | | 20.0 | | | | |
| Green Ext Time (p_c), s | 0.3 | 1.0 | | 1.4 | 0.0 | 1.4 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 51.5 | | | | | | | | | |
| HCM 6th LOS | | | D | | | | | | | | | |

**Notes**

User approved pedestrian interval to be less than phase max green.

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

# HCM 6th Signalized Intersection Summary
## 1: Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp

04/14/2020

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 325 | 0 | 238 | 0 | 1299 | 351 | 0 | 464 | 655 |
| Future Volume (veh/h) | 0 | 0 | 0 | 325 | 0 | 238 | 0 | 1299 | 351 | 0 | 464 | 655 |
| 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 | | | | 1885 | 0 | 1885 | 0 | 1885 | 1885 | 0 | 1885 | 1870 |
| Adj Flow Rate, veh/h | | | | 378 | 0 | 277 | 0 | 1510 | 0 | 0 | 540 | 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, % | | | | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 2 |
| Cap, veh/h | | | | 429 | 0 | 382 | 0 | 2254 | | 0 | 2254 | |
| Arrive On Green | | | | 0.24 | 0.00 | 0.24 | 0.00 | 1.00 | 0.00 | 0.00 | 0.63 | 0.00 |
| Sat Flow, veh/h | | | | 1795 | 0 | 1598 | 0 | 3676 | 1598 | 0 | 3676 | 1585 |
| Grp Volume(v), veh/h | | | | 378 | 0 | 277 | 0 | 1510 | 0 | 0 | 540 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1795 | 0 | 1598 | 0 | 1791 | 1598 | 0 | 1791 | 1585 |
| Q Serve(g_s), s | | | | 14.2 | 0.0 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 14.2 | 0.0 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 429 | 0 | 382 | 0 | 2254 | | 0 | 2254 | |
| V/C Ratio(X) | | | | 0.88 | 0.00 | 0.72 | 0.00 | 0.67 | | 0.00 | 0.24 | |
| Avail Cap(c_a), veh/h | | | | 651 | 0 | 580 | 0 | 2254 | | 0 | 2254 | |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.81 | 0.00 |
| Uniform Delay (d), s/veh | | | | 25.7 | 0.0 | 24.5 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 0.0 |
| Incr Delay (d2), s/veh | | | | 6.3 | 0.0 | 1.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.2 | 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 |
| %ile BackOfQ(50%),veh/ln | | | | 6.3 | 0.0 | 4.0 | 0.0 | 0.3 | 0.0 | 0.0 | 1.4 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 31.9 | 0.0 | 25.5 | 0.0 | 0.9 | 0.0 | 0.0 | 5.9 | 0.0 |
| LnGrp LOS | | | | C | A | C | A | A | | A | A | |
| Approach Vol, veh/h | | | | | 655 | | | 1510 | A | | 540 | A |
| Approach Delay, s/veh | | | | | 29.2 | | | 0.9 | | | 5.9 | |
| Approach LOS | | | | | C | | | A | | | A | |

| Timer - Assigned Phs | 2 | | 6 | | 8 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 48.7 | | 48.7 | | 21.3 | | | | | | | |
| Change Period (Y+Rc), s | 4.6 | | 4.6 | | 4.6 | | | | | | | |
| Max Green Setting (Gmax), s | 35.4 | | 35.4 | | 25.4 | | | | | | | |
| Max Q Clear Time (g_c+I1), s | 2.0 | | 6.6 | | 16.2 | | | | | | | |
| Green Ext Time (p_c), s | 13.8 | | 3.8 | | 0.5 | | | | | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | 8.7 | |
| HCM 6th LOS | A | |

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1005 | 0 | 716 | 0 | 0 | 0 | 0 | 645 | 281 | 194 | 595 | 0 |
| Future Volume (veh/h) | 1005 | 0 | 716 | 0 | 0 | 0 | 0 | 645 | 281 | 194 | 595 | 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 | 1885 | 0 | 1885 | | | | 0 | 1870 | 1870 | 1885 | 1885 | 0 |
| Adj Flow Rate, veh/h | 1142 | 0 | 0 | | | | 0 | 733 | 319 | 220 | 676 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | | | | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 1 | 0 | 1 | | | | 0 | 2 | 2 | 1 | 1 | 0 |
| Cap, veh/h | 1271 | 0 | | | | | 0 | 1192 | 529 | 375 | 949 | 0 |
| Arrive On Green | 0.36 | 0.00 | 0.00 | | | | 0.00 | 0.34 | 0.34 | 0.14 | 0.67 | 0.00 |
| Sat Flow, veh/h | 3483 | 0 | 1598 | | | | 0 | 3647 | 1578 | 1795 | 1885 | 0 |
| Grp Volume(v), veh/h | 1142 | 0 | 0 | | | | 0 | 733 | 319 | 220 | 676 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1742 | 0 | 1598 | | | | 0 | 1777 | 1578 | 1795 | 1885 | 0 |
| Q Serve(g_s), s | 21.7 | 0.0 | 0.0 | | | | 0.0 | 12.1 | 11.8 | 5.3 | 15.8 | 0.0 |
| Cycle Q Clear(g_c), s | 21.7 | 0.0 | 0.0 | | | | 0.0 | 12.1 | 11.8 | 5.3 | 15.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 1271 | 0 | | | | | 0 | 1192 | 529 | 375 | 949 | 0 |
| V/C Ratio(X) | 0.90 | 0.00 | | | | | 0.00 | 0.61 | 0.60 | 0.59 | 0.71 | 0.00 |
| Avail Cap(c_a), veh/h | 1562 | 0 | | | | | 0 | 1192 | 529 | 381 | 949 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 0.91 | 0.91 | 0.88 | 0.88 | 0.00 |
| Uniform Delay (d), s/veh | 21.0 | 0.0 | 0.0 | | | | 0.0 | 19.5 | 19.4 | 13.2 | 8.4 | 0.0 |
| Incr Delay (d2), s/veh | 5.6 | 0.0 | 0.0 | | | | 0.0 | 2.2 | 4.6 | 1.3 | 4.0 | 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(50%),veh/ln | 8.8 | 0.0 | 0.0 | | | | 0.0 | 4.7 | 4.4 | 1.8 | 4.6 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 26.6 | 0.0 | 0.0 | | | | 0.0 | 21.6 | 23.9 | 14.5 | 12.4 | 0.0 |
| LnGrp LOS | C | A | | | | | A | C | C | B | B | A |
| Approach Vol, veh/h | | 1142 | A | | | | | 1052 | | | 896 | |
| Approach Delay, s/veh | | 26.6 | | | | | | 22.3 | | | 12.9 | |
| Approach LOS | | C | | | | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.8 | 28.1 | | 30.1 | | 39.9 | | | | | | |
| Change Period (Y+Rc), s | 4.6 | 4.6 | | 4.6 | | 4.6 | | | | | | |
| Max Green Setting (Gmax), s | 7.4 | 17.4 | | 31.4 | | 29.4 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 17.3 | 14.1 | | 23.7 | | 17.8 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.8 | | 1.9 | | 3.2 | | | | | | |

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

Notes

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 195 | 0 | 1108 | 0 | 1749 | 219 | 0 | 1334 | 653 |
| Future Volume (veh/h) | 0 | 0 | 0 | 195 | 0 | 1108 | 0 | 1749 | 219 | 0 | 1334 | 653 |
| 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 | | | | 1900 | 1900 | 1900 | 0 | 1900 | 1900 | 0 | 1885 | 1885 |
| Adj Flow Rate, veh/h | | | | 201 | 0 | 1142 | 0 | 1803 | 0 | 0 | 1375 | 0 |
| Peak Hour Factor | | | | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Cap, veh/h | | | | 1429 | 774 | 656 | 0 | 1547 | | 0 | 1535 | |
| Arrive On Green | | | | 0.41 | 0.00 | 0.41 | 0.00 | 0.14 | 0.00 | 0.00 | 0.43 | 0.00 |
| Sat Flow, veh/h | | | | 3510 | 1900 | 1610 | 0 | 3705 | 1610 | 0 | 3676 | 1598 |
| Grp Volume(v), veh/h | | | | 201 | 0 | 1142 | 0 | 1803 | 0 | 0 | 1375 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1755 | 1900 | 1610 | 0 | 1805 | 1610 | 0 | 1791 | 1598 |
| Q Serve(g_s), s | | | | 2.0 | 0.0 | 22.8 | 0.0 | 24.0 | 0.0 | 0.0 | 19.9 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 2.0 | 0.0 | 22.8 | 0.0 | 24.0 | 0.0 | 0.0 | 19.9 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 1429 | 774 | 656 | 0 | 1547 | | 0 | 1535 | |
| V/C Ratio(X) | | | | 0.14 | 0.00 | 1.74 | 0.00 | 1.17 | | 0.00 | 0.90 | |
| Avail Cap(c_a), veh/h | | | | 1429 | 774 | 656 | 0 | 1547 | | 0 | 1535 | |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 0.52 | 0.00 | 0.00 | 0.40 | 0.00 |
| Uniform Delay (d), s/veh | | | | 10.4 | 0.0 | 16.6 | 0.0 | 24.0 | 0.0 | 0.0 | 14.8 | 0.0 |
| Incr Delay (d2), s/veh | | | | 0.0 | 0.0 | 340.2 | 0.0 | 78.5 | 0.0 | 0.0 | 3.7 | 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(50%),veh/ln | | | | 0.7 | 0.0 | 68.9 | 0.0 | 28.0 | 0.0 | 0.0 | 7.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 10.5 | 0.0 | 356.8 | 0.0 | 102.5 | 0.0 | 0.0 | 18.6 | 0.0 |
| LnGrp LOS | | | | B | A | F | A | F | | A | B | |
| Approach Vol, veh/h | | | | | 1343 | | | 1803 | A | | 1375 | A |
| Approach Delay, s/veh | | | | | 305.0 | | | 102.5 | | | 18.6 | |
| Approach LOS | | | | | F | | | F | | | B | |

| Timer - Assigned Phs | 2 | | 6 | | 8 | | | |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 28.6 | | 28.6 | | 27.4 | | | |
| Change Period (Y+Rc), s | 4.6 | | 4.6 | | 4.6 | | | |
| Max Green Setting (Gmax), s | 24.0 | | 24.0 | | 22.8 | | | |
| Max Q Clear Time (g_c+I1), s | 26.0 | | 21.9 | | 24.8 | | | |
| Green Ext Time (p_c), s | 0.0 | | 1.8 | | 0.0 | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | 137.1 | |
| HCM 6th LOS | F | |

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1225 | 0 | 539 | 0 | 0 | 0 | 0 | 743 | 167 | 0 | 708 | 821 |
| Future Volume (veh/h) | 1225 | 0 | 539 | 0 | 0 | 0 | 0 | 743 | 167 | 0 | 708 | 821 |
| 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 | 1900 | 0 | 1900 | | | | 0 | 1885 | 1885 | 0 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 1289 | 0 | 0 | | | | 0 | 782 | 176 | 0 | 745 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | | | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 0 | 0 | 0 | | | | 0 | 1 | 1 | 0 | 1 | 1 |
| Cap, veh/h | 1291 | 0 | | | | | 0 | 1328 | 299 | 0 | 1637 | |
| Arrive On Green | 0.37 | 0.00 | 0.00 | | | | 0.00 | 0.46 | 0.46 | 0.00 | 0.76 | 0.00 |
| Sat Flow, veh/h | 3510 | 0 | 1610 | | | | 0 | 2998 | 654 | 0 | 3676 | 1598 |
| Grp Volume(v), veh/h | 1289 | 0 | 0 | | | | 0 | 482 | 476 | 0 | 745 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 0 | 1610 | | | | 0 | 1791 | 1767 | 0 | 1791 | 1598 |
| Q Serve(g_s), s | 20.5 | 0.0 | 0.0 | | | | 0.0 | 11.2 | 11.2 | 0.0 | 4.2 | 0.0 |
| Cycle Q Clear(g_c), s | 20.5 | 0.0 | 0.0 | | | | 0.0 | 11.2 | 11.2 | 0.0 | 4.2 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.37 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 1291 | 0 | | | | | 0 | 819 | 808 | 0 | 1637 | |
| V/C Ratio(X) | 1.00 | 0.00 | | | | | 0.00 | 0.59 | 0.59 | 0.00 | 0.45 | |
| Avail Cap(c_a), veh/h | 1291 | 0 | | | | | 0 | 819 | 808 | 0 | 1637 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.67 | 1.67 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 1.00 | 1.00 | 0.00 | 0.50 | 0.00 |
| Uniform Delay (d), s/veh | 17.7 | 0.0 | 0.0 | | | | 0.0 | 11.3 | 11.3 | 0.0 | 4.1 | 0.0 |
| Incr Delay (d2), s/veh | 24.6 | 0.0 | 0.0 | | | | 0.0 | 3.1 | 3.1 | 0.0 | 0.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 11.5 | 0.0 | 0.0 | | | | 0.0 | 4.4 | 4.3 | 0.0 | 1.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 42.3 | 0.0 | 0.0 | | | | 0.0 | 14.4 | 14.4 | 0.0 | 4.6 | 0.0 |
| LnGrp LOS | D | A | | | | | A | B | B | A | A | |
| Approach Vol, veh/h | | 1289 | A | | | | | 958 | | | 745 | A |
| Approach Delay, s/veh | | 42.3 | | | | | | 14.4 | | | 4.6 | |
| Approach LOS | | D | | | | | | B | | | A | |

| Timer - Assigned Phs | 2 | 4 | 6 |
|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 30.9 | 25.1 | 30.9 |
| Change Period (Y+Rc), s | 5.3 | 4.5 | 5.3 |
| Max Green Setting (Gmax), s | 25.6 | 20.6 | 25.6 |
| Max Q Clear Time (g_c+I1), s | 13.2 | 22.5 | 6.2 |
| Green Ext Time (p_c), s | 3.5 | 0.0 | 4.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 24.0 |
| HCM 6th LOS | C |

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 18 | 448 | 46 | 142 | 527 | 11 | 473 | 10 | 125 | 12 | 2 | 16 |
| Future Volume (veh/h) | 18 | 448 | 46 | 142 | 527 | 11 | 473 | 10 | 125 | 12 | 2 | 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 | | 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 | 1767 | 1767 | 1767 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 20 | 509 | 0 | 161 | 599 | 12 | 538 | 11 | 0 | 14 | 2 | 18 |
| 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, % | 9 | 9 | 9 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Cap, veh/h | 327 | 807 | | 423 | 1137 | 23 | 708 | 655 | | 219 | 9 | 81 |
| Arrive On Green | 0.03 | 0.24 | 0.00 | 0.11 | 0.32 | 0.32 | 0.20 | 0.35 | 0.00 | 0.06 | 0.06 | 0.06 |
| Sat Flow, veh/h | 1682 | 3357 | 1497 | 1795 | 3591 | 72 | 3456 | 1870 | 1585 | 1426 | 164 | 1472 |
| Grp Volume(v), veh/h | 20 | 509 | 0 | 161 | 299 | 312 | 538 | 11 | 0 | 14 | 0 | 20 |
| Grp Sat Flow(s),veh/h/ln | 1682 | 1678 | 1497 | 1795 | 1791 | 1872 | 1728 | 1870 | 1585 | 1426 | 0 | 1635 |
| Q Serve(g_s), s | 0.5 | 7.0 | 0.0 | 3.2 | 7.0 | 7.0 | 7.5 | 0.2 | 0.0 | 0.5 | 0.0 | 0.6 |
| Cycle Q Clear(g_c), s | 0.5 | 7.0 | 0.0 | 3.2 | 7.0 | 7.0 | 7.5 | 0.2 | 0.0 | 0.5 | 0.0 | 0.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 0.90 |
| Lane Grp Cap(c), veh/h | 327 | 807 | | 423 | 567 | 593 | 708 | 655 | | 219 | 0 | 91 |
| V/C Ratio(X) | 0.06 | 0.63 | | 0.38 | 0.53 | 0.53 | 0.76 | 0.02 | | 0.06 | 0.00 | 0.22 |
| Avail Cap(c_a), veh/h | 934 | 2422 | | 935 | 1292 | 1351 | 2022 | 1627 | | 418 | 0 | 319 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 13.9 | 17.4 | 0.0 | 12.2 | 14.4 | 14.4 | 19.2 | 10.9 | 0.0 | 23.1 | 0.0 | 23.2 |
| Incr Delay (d2), s/veh | 0.0 | 0.8 | 0.0 | 0.2 | 0.8 | 0.7 | 0.6 | 0.0 | 0.0 | 0.0 | 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 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 2.3 | 0.0 | 1.0 | 2.4 | 2.5 | 2.7 | 0.1 | 0.0 | 0.2 | 0.0 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 14.0 | 18.3 | 0.0 | 12.4 | 15.1 | 15.1 | 19.8 | 10.9 | 0.0 | 23.2 | 0.0 | 23.6 |
| LnGrp LOS | B | B | | B | B | B | B | B | | C | A | C |
| Approach Vol, veh/h | | 529 | A | | 772 | | | 549 | A | | 34 | |
| Approach Delay, s/veh | | 18.1 | | | 14.5 | | | 19.7 | | | 23.4 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.5 | 17.7 | 15.1 | 7.9 | 6.6 | 21.6 | | 23.1 |
| Change Period (Y+Rc), s | 5.1 | 5.4 | 4.6 | 5.1 | 5.1 | 5.4 | | 5.1 |
| Max Green Setting (Gmax), s | 20.0 | 37.0 | 30.0 | 10.0 | 20.0 | 37.0 | | 44.6 |
| Max Q Clear Time (g_c+I1), s | 15.2 | 9.0 | 9.5 | 2.6 | 2.5 | 9.0 | | 2.2 |
| Green Ext Time (p_c), s | 0.2 | 3.4 | 1.0 | 0.0 | 0.0 | 3.6 | | 0.0 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 740 | 458 | 0 | 668 | 304 | 0 | 0 | 0 | 279 | 0 | 407 |
| Future Volume (veh/h) | 0 | 740 | 458 | 0 | 668 | 304 | 0 | 0 | 0 | 279 | 0 | 407 |
| 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 | 0 | 1870 | 1870 | 0 | 1885 | 1885 | | | | 1885 | 0 | 1885 |
| Adj Flow Rate, veh/h | 0 | 787 | 0 | 0 | 711 | 0 | | | | 297 | 0 | 433 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 0 | 2 | 2 | 0 | 1 | 1 | | | | 1 | 0 | 1 |
| Cap, veh/h | 0 | 1428 | | 0 | 1439 | | | | | 596 | 0 | 530 |
| Arrive On Green | 0.00 | 0.40 | 0.00 | 0.00 | 0.40 | 0.00 | | | | 0.33 | 0.00 | 0.33 |
| Sat Flow, veh/h | 0 | 3741 | 0 | 0 | 3770 | 0 | | | | 1795 | 0 | 1598 |
| Grp Volume(v), veh/h | 0 | 787 | 0 | 0 | 711 | 0 | | | | 297 | 0 | 433 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1777 | 0 | 0 | 1791 | 0 | | | | 1795 | 0 | 1598 |
| Q Serve(g_s), s | 0.0 | 6.4 | 0.0 | 0.0 | 5.6 | 0.0 | | | | 5.0 | 0.0 | 9.3 |
| Cycle Q Clear(g_c), s | 0.0 | 6.4 | 0.0 | 0.0 | 5.6 | 0.0 | | | | 5.0 | 0.0 | 9.3 |
| Prop In Lane | 0.00 | | 0.00 | 0.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1428 | | 0 | 1439 | | | | | 596 | 0 | 530 |
| V/C Ratio(X) | 0.00 | 0.55 | | 0.00 | 0.49 | | | | | 0.50 | 0.00 | 0.82 |
| Avail Cap(c_a), veh/h | 0 | 5208 | | 0 | 5250 | | | | | 1196 | 0 | 1064 |
| 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 | 8.6 | 0.0 | 0.0 | 8.4 | 0.0 | | | | 10.0 | 0.0 | 11.5 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | | | | 0.2 | 0.0 | 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 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.7 | 0.0 | 0.0 | 1.5 | 0.0 | | | | 1.4 | 0.0 | 2.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 0.0 | 8.7 | 0.0 | 0.0 | 8.5 | 0.0 | | | | 10.3 | 0.0 | 12.7 |
| LnGrp LOS | A | A | | A | A | | | | | B | A | B |
| Approach Vol, veh/h | | 787 | A | | 711 | A | | | | | 730 | |
| Approach Delay, s/veh | | 8.7 | | | 8.5 | | | | | | 11.7 | |
| Approach LOS | | A | | | A | | | | | | B | |

| Timer - Assigned Phs | 2 | 4 | 6 |
|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.1 | 17.4 | 20.1 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 55.0 | 25.0 | 55.0 |
| Max Q Clear Time (g_c+I1), s | 8.4 | 11.3 | 7.6 |
| Green Ext Time (p_c), s | 4.2 | 1.1 | 3.7 |

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

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 341 | 678 | 0 | 0 | 749 | 585 | 223 | 1 | 302 | 0 | 0 | 0 |
| Future Volume (veh/h) | 341 | 678 | 0 | 0 | 749 | 585 | 223 | 1 | 302 | 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 | 1885 | 1885 | 0 | 0 | 1885 | 1885 | 1900 | 1900 | 1900 | | | |
| Adj Flow Rate, veh/h | 355 | 706 | 0 | 0 | 780 | 609 | 232 | 1 | 315 | | | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | | |
| Percent Heavy Veh, % | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | | | |
| Cap, veh/h | 445 | 2296 | 0 | 0 | 1586 | 707 | 407 | 0 | 362 | | | |
| Arrive On Green | 0.13 | 0.64 | 0.00 | 0.00 | 0.44 | 0.44 | 0.22 | 0.22 | 0.22 | | | |
| Sat Flow, veh/h | 1795 | 3676 | 0 | 0 | 3676 | 1598 | 1810 | 0 | 1610 | | | |
| Grp Volume(v), veh/h | 355 | 706 | 0 | 0 | 780 | 609 | 232 | 0 | 315 | | | |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1791 | 0 | 0 | 1791 | 1598 | 1810 | 0 | 1610 | | | |
| Q Serve(g_s), s | 7.3 | 6.6 | 0.0 | 0.0 | 11.5 | 25.6 | 8.5 | 0.0 | 14.0 | | | |
| Cycle Q Clear(g_c), s | 7.3 | 6.6 | 0.0 | 0.0 | 11.5 | 25.6 | 8.5 | 0.0 | 14.0 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 445 | 2296 | 0 | 0 | 1586 | 707 | 407 | 0 | 362 | | | |
| V/C Ratio(X) | 0.80 | 0.31 | 0.00 | 0.00 | 0.49 | 0.86 | 0.57 | 0.00 | 0.87 | | | |
| Avail Cap(c_a), veh/h | 692 | 3849 | 0 | 0 | 2646 | 1180 | 608 | 0 | 541 | | | |
| 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 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 12.2 | 6.0 | 0.0 | 0.0 | 14.8 | 18.7 | 25.7 | 0.0 | 27.8 | | | |
| Incr Delay (d2), s/veh | 1.6 | 0.0 | 0.0 | 0.0 | 0.1 | 1.7 | 0.5 | 0.0 | 6.9 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 2.6 | 2.0 | 0.0 | 0.0 | 4.3 | 8.8 | 3.5 | 0.0 | 5.8 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 13.9 | 6.0 | 0.0 | 0.0 | 14.9 | 20.4 | 26.1 | 0.0 | 34.7 | | | |
| LnGrp LOS | B | A | A | A | B | C | C | A | C | | | |
| Approach Vol, veh/h | | 1061 | | | 1389 | | | 547 | | | | |
| Approach Delay, s/veh | | 8.6 | | | 17.3 | | | 31.1 | | | | |
| Approach LOS | | A | | | B | | | C | | | | |
| Timer - Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 52.7 | | | 14.7 | 38.0 | | 21.7 | | | | |
| Change Period (Y+Rc), s | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | | |
| Max Green Setting (Gmax), s | | 80.0 | | | 20.0 | 55.0 | | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 8.6 | | | 9.3 | 27.6 | | 16.0 | | | | |
| Green Ext Time (p_c), s | | 3.6 | | | 0.4 | 5.4 | | 0.7 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 6th Ctrl Delay | | | 16.7 | | | | | | | | | |
| HCM 6th LOS | | | B | | | | | | | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 12.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 343 | 366 | 0 | 114 | 226 |
| Future Vol, veh/h | 0 | 343 | 366 | 0 | 114 | 226 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 1 | 1 |
| Mvmt Flow | 0 | 404 | 431 | 0 | 134 | 266 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 431 | 0 | - | 0 | 835 | 431 |
| Stage 1 | - | - | - | - | 431 | - |
| Stage 2 | - | - | - | - | 404 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | 1129 | - | - | - | 339 | 626 |
| Stage 1 | - | - | - | - | 657 | - |
| Stage 2 | - | - | - | - | 676 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1129 | - | - | - | 339 | 626 |
| Mov Cap-2 Maneuver | - | - | - | - | 339 | - |
| Stage 1 | - | - | - | - | 657 | - |
| Stage 2 | - | - | - | - | 676 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 37.9 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1129 | - | - | - | 488 |
| HCM Lane V/C Ratio | - | - | - | - | 0.82 |
| HCM Control Delay (s) | 0 | - | - | - | 37.9 |
| HCM Lane LOS | A | - | - | - | E |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 7.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 374 | 1 | 302 | 318 | 604 | 0 | 0 | 473 | 482 |
| Future Volume (veh/h) | 0 | 0 | 0 | 374 | 1 | 302 | 318 | 604 | 0 | 0 | 473 | 482 |
| 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 | | | | 1885 | 1885 | 1885 | 1885 | 1885 | 0 | 0 | 1885 | 1885 |
| Adj Flow Rate, veh/h | | | | 420 | 1 | 339 | 357 | 679 | 0 | 0 | 531 | 542 |
| Peak Hour Factor | | | | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | | | | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| Cap, veh/h | | | | 487 | 1 | 434 | 394 | 2195 | 0 | 0 | 746 | 664 |
| Arrive On Green | | | | 0.27 | 0.27 | 0.27 | 0.14 | 0.61 | 0.00 | 0.00 | 0.42 | 0.42 |
| Sat Flow, veh/h | | | | 1791 | 4 | 1598 | 1795 | 3676 | 0 | 0 | 1885 | 1594 |
| Grp Volume(v), veh/h | | | | 421 | 0 | 339 | 357 | 679 | 0 | 0 | 531 | 542 |
| Grp Sat Flow(s),veh/h/ln | | | | 1796 | 0 | 1598 | 1795 | 1791 | 0 | 0 | 1791 | 1594 |
| Q Serve(g_s), s | | | | 19.3 | 0.0 | 17.0 | 9.8 | 7.8 | 0.0 | 0.0 | 21.3 | 26.1 |
| Cycle Q Clear(g_c), s | | | | 19.3 | 0.0 | 17.0 | 9.8 | 7.8 | 0.0 | 0.0 | 21.3 | 26.1 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 488 | 0 | 434 | 394 | 2195 | 0 | 0 | 746 | 664 |
| V/C Ratio(X) | | | | 0.86 | 0.00 | 0.78 | 0.91 | 0.31 | 0.00 | 0.00 | 0.71 | 0.82 |
| Avail Cap(c_a), veh/h | | | | 622 | 0 | 553 | 455 | 2894 | 0 | 0 | 1034 | 920 |
| 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 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 30.0 | 0.0 | 29.2 | 18.7 | 8.0 | 0.0 | 0.0 | 21.0 | 22.4 |
| Incr Delay (d2), s/veh | | | | 9.2 | 0.0 | 4.9 | 18.6 | 0.1 | 0.0 | 0.0 | 1.4 | 4.1 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 9.3 | 0.0 | 6.9 | 5.6 | 2.7 | 0.0 | 0.0 | 8.7 | 9.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | | | | 39.3 | 0.0 | 34.1 | 37.3 | 8.1 | 0.0 | 0.0 | 22.4 | 26.5 |
| LnGrp LOS | | | | D | A | C | D | A | A | A | C | C |
| Approach Vol, veh/h | | | | | 760 | | | 1036 | | | 1073 | |
| Approach Delay, s/veh | | | | | 37.0 | | | 18.2 | | | 24.4 | |
| Approach LOS | | | | | D | | | B | | | C | |

| Timer - Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 58.1 | | | 17.0 | 41.1 | | 28.5 | | | | |
| Change Period (Y+Rc), s | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | | |
| Max Green Setting (Gmax), s | | 70.0 | | | 15.0 | 50.0 | | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 9.8 | | | 11.8 | 28.1 | | 21.3 | | | | |
| Green Ext Time (p_c), s | | 5.6 | | | 0.2 | 8.0 | | 2.2 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 25.5 | | | | | | | | | |
| HCM 6th LOS | | | C | | | | | | | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 285 | 450 | 134 | 637 | 748 | 99 |
| Future Volume (veh/h) | 285 | 450 | 134 | 637 | 748 | 99 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1885 | 1885 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 297 | 469 | 140 | 664 | 779 | 103 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 1 | 1 | 2 | 2 |
| Cap, veh/h | 1084 | 497 | 381 | 1897 | 1106 | 146 |
| Arrive On Green | 0.31 | 0.31 | 0.10 | 0.53 | 0.35 | 0.35 |
| Sat Flow, veh/h | 3456 | 1585 | 1795 | 3676 | 3248 | 417 |
| Grp Volume(v), veh/h | 297 | 469 | 140 | 664 | 439 | 443 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1585 | 1795 | 1791 | 1777 | 1795 |
| Q Serve(g_s), s | 4.1 | 18.4 | 2.8 | 6.8 | 13.6 | 13.6 |
| Cycle Q Clear(g_c), s | 4.1 | 18.4 | 2.8 | 6.8 | 13.6 | 13.6 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 0.23 |
| Lane Grp Cap(c), veh/h | 1084 | 497 | 381 | 1897 | 623 | 629 |
| V/C Ratio(X) | 0.27 | 0.94 | 0.37 | 0.35 | 0.70 | 0.70 |
| Avail Cap(c_a), veh/h | 1084 | 497 | 622 | 3932 | 1393 | 1407 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.4 | 21.3 | 11.7 | 8.7 | 17.9 | 17.9 |
| Incr Delay (d2), s/veh | 0.1 | 26.8 | 0.2 | 0.1 | 1.5 | 1.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 17.7 | 1.0 | 2.2 | 5.3 | 5.3 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 16.6 | 48.1 | 11.9 | 8.8 | 19.3 | 19.3 |
| LnGrp LOS | B | D | B | A | B | B |
| Approach Vol, veh/h | 766 | | | 804 | 882 | |
| Approach Delay, s/veh | 35.9 | | | 9.3 | 19.3 | |
| Approach LOS | D | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 38.8 | | 25.0 | 11.4 | 27.4 |
| Change Period (Y+Rc), s | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | | 70.0 | | 20.0 | 15.0 | 50.0 |
| Max Q Clear Time (g_c+I1), s | | 8.8 | | 20.4 | 4.8 | 15.6 |
| Green Ext Time (p_c), s | | 5.4 | | 0.0 | 0.1 | 6.7 |

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

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 60 | 256 | 394 | 270 | 323 | 245 |
| Future Volume (veh/h) | 60 | 256 | 394 | 270 | 323 | 245 |
| 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 | 1722 | 1722 | 1752 | 1752 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 70 | 298 | 458 | 314 | 376 | 285 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | 12 | 12 | 10 | 10 | 6 | 6 |
| Cap, veh/h | 377 | 336 | 481 | 1141 | 340 | 257 |
| Arrive On Green | 0.23 | 0.23 | 0.24 | 0.65 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1640 | 1459 | 1668 | 1752 | 956 | 725 |
| Grp Volume(v), veh/h | 70 | 298 | 458 | 314 | 0 | 661 |
| Grp Sat Flow(s),veh/h/ln | 1640 | 1459 | 1668 | 1752 | 0 | 1681 |
| Q Serve(g_s), s | 2.9 | 16.7 | 18.4 | 6.4 | 0.0 | 30.0 |
| Cycle Q Clear(g_c), s | 2.9 | 16.7 | 18.4 | 6.4 | 0.0 | 30.0 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 0.43 |
| Lane Grp Cap(c), veh/h | 377 | 336 | 481 | 1141 | 0 | 597 |
| V/C Ratio(X) | 0.19 | 0.89 | 0.95 | 0.28 | 0.00 | 1.11 |
| Avail Cap(c_a), veh/h | 583 | 519 | 481 | 1141 | 0 | 597 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.1 | 31.4 | 23.9 | 6.2 | 0.0 | 27.2 |
| Incr Delay (d2), s/veh | 0.2 | 10.1 | 29.2 | 0.1 | 0.0 | 69.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 0.9 | 7.9 | 2.1 | 0.0 | 22.9 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 26.3 | 41.5 | 53.1 | 6.4 | 0.0 | 96.8 |
| LnGrp LOS | C | D | D | A | A | F |
| Approach Vol, veh/h | 368 | | | 772 | 661 | |
| Approach Delay, s/veh | 38.6 | | | 34.1 | 96.8 | |
| Approach LOS | D | | | C | F | |

| Timer - Assigned Phs | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 60.0 | | 24.4 | 25.0 | 35.0 |
| Change Period (Y+Rc), s | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 55.0 | | 30.0 | 20.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 8.4 | | 18.7 | 20.4 | 32.0 |
| Green Ext Time (p_c), s | 2.1 | | 0.8 | 0.0 | 0.0 |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | 58.0 | |
| HCM 6th LOS | E | |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 133 | 271 | 92 | 531 | 498 | 81 |
| Future Volume (veh/h) | 133 | 271 | 92 | 531 | 498 | 81 |
| 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 | 1707 | 1707 | 1841 | 1841 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 151 | 308 | 105 | 603 | 566 | 92 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 13 | 13 | 4 | 4 | 5 | 5 |
| Cap, veh/h | 416 | 370 | 377 | 1040 | 685 | 579 |
| Arrive On Green | 0.26 | 0.26 | 0.10 | 0.57 | 0.38 | 0.38 |
| Sat Flow, veh/h | 1626 | 1447 | 1753 | 1841 | 1826 | 1543 |
| Grp Volume(v), veh/h | 151 | 308 | 105 | 603 | 566 | 92 |
| Grp Sat Flow(s),veh/h/ln | 1626 | 1447 | 1753 | 1841 | 1826 | 1543 |
| Q Serve(g_s), s | 4.3 | 11.3 | 1.7 | 11.8 | 15.7 | 2.2 |
| Cycle Q Clear(g_c), s | 4.3 | 11.3 | 1.7 | 11.8 | 15.7 | 2.2 |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Lane Grp Cap(c), veh/h | 416 | 370 | 377 | 1040 | 685 | 579 |
| V/C Ratio(X) | 0.36 | 0.83 | 0.28 | 0.58 | 0.83 | 0.16 |
| Avail Cap(c_a), veh/h | 872 | 776 | 828 | 1810 | 979 | 828 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.1 | 19.7 | 10.3 | 7.9 | 15.8 | 11.6 |
| Incr Delay (d2), s/veh | 0.4 | 3.7 | 0.1 | 0.5 | 4.0 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 0.4 | 0.5 | 3.6 | 6.4 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 17.5 | 23.3 | 10.5 | 8.4 | 19.8 | 11.7 |
| LnGrp LOS | B | C | B | A | B | B |
| Approach Vol, veh/h | 459 | | | 708 | 658 | |
| Approach Delay, s/veh | 21.4 | | | 8.7 | 18.7 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 36.6 | | 19.3 | 10.6 | 26.0 |
| Change Period (Y+Rc), s | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 55.0 | | 30.0 | 20.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 13.8 | | 13.3 | 3.7 | 17.7 |
| Green Ext Time (p_c), s | 4.7 | | 1.1 | 0.1 | 3.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 15.5 |
| HCM 6th LOS | B |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 2 | 169 | 13 | 9 | 6 | 56 | 593 | 4 | 2 | 908 | 9 |
| Future Vol, veh/h | 11 | 2 | 169 | 13 | 9 | 6 | 56 | 593 | 4 | 2 | 908 | 9 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 250 | - | - | 200 | - | - |
| 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, % | 2 | 2 | 2 | 17 | 17 | 17 | 21 | 21 | 21 | 17 | 17 | 17 |
| Mvmt Flow | 12 | 2 | 182 | 14 | 10 | 6 | 60 | 638 | 4 | 2 | 976 | 10 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1429 | 1747 | 493 | 1253 | 1750 | 321 | 986 | 0 | 0 | 642 | 0 | 0 |
| Stage 1 | 985 | 985 | - | 760 | 760 | - | - | - | - | - | - | - |
| Stage 2 | 444 | 762 | - | 493 | 990 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.54 | 6.94 | 7.84 | 6.84 | 7.24 | 4.52 | - | - | 4.44 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.54 | - | 6.84 | 5.84 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.54 | - | 6.84 | 5.84 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4.02 | 3.32 | 3.67 | 4.17 | 3.47 | 2.41 | - | - | 2.37 | - | - |
| Pot Cap-1 Maneuver | 95 | 85 | 522 | 113 | 73 | 633 | 592 | - | - | 844 | - | - |
| Stage 1 | 266 | 324 | - | 333 | 378 | - | - | - | - | - | - | - |
| Stage 2 | 563 | 412 | - | 489 | 291 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 77 | 76 | 522 | 66 | 65 | 633 | 592 | - | - | 844 | - | - |
| Mov Cap-2 Maneuver | 77 | 76 | - | 66 | 65 | - | - | - | - | - | - | - |
| Stage 1 | 239 | 323 | - | 299 | 340 | - | - | - | - | - | - | - |
| Stage 2 | 487 | 370 | - | 316 | 290 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 25.3 | 73.7 | 1 | 0 |
| HCM LOS | D | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 592 | - | - | 369 | 81 | 844 | - | - |
| HCM Lane V/C Ratio | 0.102 | - | - | 0.53 | 0.372 | 0.003 | - | - |
| HCM Control Delay (s) | 11.8 | - | - | 25.3 | 73.7 | 9.3 | - | - |
| HCM Lane LOS | B | - | - | D | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 3 | 1.4 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 45.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 296 | 55 | 1 | 34 | 121 | 243 | 0 | 86 | 15 | 26 | 2 | 6 |
| Future Vol, veh/h | 296 | 55 | 1 | 34 | 121 | 243 | 0 | 86 | 15 | 26 | 2 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 190 | - | - | 550 | - | 550 | 200 | - | - | 250 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Heavy Vehicles, % | 9 | 9 | 9 | 18 | 18 | 18 | 9 | 9 | 9 | 48 | 48 | 48 |
| Mvmt Flow | 395 | 73 | 1 | 45 | 161 | 324 | 0 | 115 | 20 | 35 | 3 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 485 | 0 | 0 | 74 | 0 | 0 | 1283 | 1439 | 74 | 1182 | 1115 | 161 |
| Stage 1 | - | - | - | - | - | - | 864 | 864 | - | 251 | 251 | - |
| Stage 2 | - | - | - | - | - | - | 419 | 575 | - | 931 | 864 | - |
| Critical Hdwy | 4.19 | - | - | 4.28 | - | - | 7.19 | 6.59 | 6.29 | 7.58 | 6.98 | 6.68 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.58 | 5.98 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.58 | 5.98 | - |
| Follow-up Hdwy | 2.281 | - | - | 2.362 | - | - | 3.581 | 4.081 | 3.381 | 3.932 | 4.432 | 3.732 |
| Pot Cap-1 Maneuver | 1042 | - | - | 1430 | - | - | 137 | 128 | 969 | 135 | 172 | 777 |
| Stage 1 | - | - | - | - | - | - | 339 | 362 | - | 662 | 622 | - |
| Stage 2 | - | - | - | - | - | - | 598 | 492 | - | 266 | 314 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1042 | - | - | 1430 | - | - | 92 | ~ 77 | 969 | - | 104 | 777 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 92 | ~ 77 | - | - | 104 | - |
| Stage 1 | - | - | - | - | - | - | 211 | 225 | - | 411 | 603 | - |
| Stage 2 | - | - | - | - | - | - | 571 | 477 | - | 79 | 195 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.9 | 0.6 | $ 363.1 | |
| HCM LOS | | | F | - |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 89 | 1042 | - | - | 1430 | - | - | - | 297 |
| HCM Lane V/C Ratio | - | 1.513 | 0.379 | - | - | 0.032 | - | - | - | 0.036 |
| HCM Control Delay (s) | 0 | $ 363.1 | 10.5 | - | - | 7.6 | - | - | - | 17.6 |
| HCM Lane LOS | A | F | B | - | - | A | - | - | - | C |
| HCM 95th %tile Q(veh) | - | 10.5 | 1.8 | - | - | 0.1 | - | - | - | 0.1 |

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 13 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 14 | 67 | 6 | 113 | 8 | 167 | 27 | 4 | 25 | 113 | 118 |
| Future Vol, veh/h | 15 | 14 | 67 | 6 | 113 | 8 | 167 | 27 | 4 | 25 | 113 | 118 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 250 | - | - | 200 | - | - | 225 | - | - | 260 | - | 110 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 43 | 43 | 43 | 15 | 15 | 15 | 21 | 21 | 21 | 32 | 32 | 32 |
| Mvmt Flow | 19 | 18 | 84 | 8 | 141 | 10 | 209 | 34 | 5 | 31 | 141 | 148 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 151 | 0 | 0 | 102 | 0 | 0 | 405 | 265 | 60 | 280 | 302 | 146 |
| Stage 1 | - | - | - | - | - | - | 98 | 98 | - | 162 | 162 | - |
| Stage 2 | - | - | - | - | - | - | 307 | 167 | - | 118 | 140 | - |
| Critical Hdwy | 4.53 | - | - | 4.25 | - | - | 7.31 | 6.71 | 6.41 | 7.42 | 6.82 | 6.52 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.31 | 5.71 | - | 6.42 | 5.82 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.31 | 5.71 | - | 6.42 | 5.82 | - |
| Follow-up Hdwy | 2.587 | - | - | 2.335 | - | - | 3.689 | 4.189 | 3.489 | 3.788 | 4.288 | 3.588 |
| Pot Cap-1 Maneuver | 1214 | - | - | 1413 | - | - | 524 | 609 | 954 | 616 | 564 | 828 |
| Stage 1 | - | - | - | - | - | - | 864 | 778 | - | 774 | 710 | - |
| Stage 2 | - | - | - | - | - | - | 664 | 726 | - | 819 | 727 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1214 | - | - | 1413 | - | - | 340 | 596 | 954 | 577 | 552 | 828 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 340 | 596 | - | 577 | 552 | - |
| Stage 1 | - | - | - | - | - | - | 850 | 766 | - | 762 | 706 | - |
| Stage 2 | - | - | - | - | - | - | 434 | 722 | - | 767 | 715 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.3 | 0.4 | 28 | 12 |
| HCM LOS | | | D | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 | SBLn3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 340 | 626 | 1214 | - | - | 1413 | - | - | 577 | 552 | 828 |
| HCM Lane V/C Ratio | 0.614 | 0.062 | 0.015 | - | - | 0.005 | - | - | 0.054 | 0.256 | 0.178 |
| HCM Control Delay (s) | 31.1 | 11.1 | 8 | - | - | 7.6 | - | - | 11.6 | 13.8 | 10.3 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | B | B | B |
| HCM 95th %tile Q(veh) | 3.9 | 0.2 | 0 | - | - | 0 | - | - | 0.2 | 1 | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↱ | ↰ | ↑ | | | ↱ | | ↱ |
| Traffic Vol, veh/h | 0 | 183 | 26 | 45 | 392 | 0 | 0 | 101 | 0 | 0 |
| Future Vol, veh/h | 0 | 183 | 26 | 45 | 392 | 0 | 0 | 101 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | None | - | - |
| Storage Length | - | - | 275 | 350 | - | - | - | 0 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Peak Hour Factor | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 92 | 92 |
| Heavy Vehicles, % | 5 | 5 | 5 | 4 | 4 | 4 | 12 | 12 | 2 | 2 |
| Mvmt Flow | 0 | 251 | 36 | 62 | 537 | 0 | 0 | 138 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | Minor2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | 287 | 0 | 0 | - | 251 | - | 537 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | 4.14 | - | - | - | 6.32 | - | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | 2.236 | - | - | - | 3.408 | - | 3.318 |
| Pot Cap-1 Maneuver | 0 | - | - | 1264 | - | 0 | 0 | 764 | 0 | 544 |
| Stage 1 | 0 | - | - | - | - | 0 | 0 | - | 0 | - |
| Stage 2 | 0 | - | - | - | - | 0 | 0 | - | 0 | - |
| Platoon blocked, % | | - | - | | - | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 1264 | - | - | - | 764 | - | 544 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SE |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.8 | 10.8 | 0 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT | SELn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 764 | - | - | 1264 | - | - |
| HCM Lane V/C Ratio | 0.181 | - | - | 0.049 | - | - |
| HCM Control Delay (s) | 10.8 | - | - | 8 | - | 0 |
| HCM Lane LOS | B | - | - | A | - | A |
| HCM 95th %tile Q(veh) | 0.7 | - | - | 0.2 | - | - |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 129 | 155 | 0 | 0 | 289 | 314 | 2 | 0 | 68 | 0 | 0 | 146 |
| Future Vol, veh/h | 129 | 155 | 0 | 0 | 289 | 314 | 2 | 0 | 68 | 0 | 0 | 146 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 330 | - | - | - | - | 270 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| Heavy Vehicles, % | 7 | 7 | 7 | 5 | 5 | 5 | 42 | 42 | 42 | 0 | 0 | 0 |
| Mvmt Flow | 182 | 218 | 0 | 0 | 407 | 442 | 3 | 0 | 96 | 0 | 0 | 206 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 849 | 0 | - | - | - | 0 | 1313 | - | 218 | - | - | 407 |
| Stage 1 | - | - | - | - | - | - | 582 | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | 731 | - | - | - | - | - |
| Critical Hdwy | 4.17 | - | - | - | - | - | 7.52 | - | 6.62 | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.52 | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.52 | - | - | - | - | - |
| Follow-up Hdwy | 2.263 | - | - | - | - | - | 3.878 | - | 3.678 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 768 | - | 0 | 0 | - | - | 112 | 0 | 731 | 0 | 0 | 648 |
| Stage 1 | - | - | 0 | 0 | - | - | 435 | 0 | - | 0 | 0 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 357 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 768 | - | - | - | - | - | 62 | - | 731 | - | - | 648 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 62 | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | 332 | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | 244 | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 5.1 | 0 | 10.7 | 13.1 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 731 | 768 | - | - | - | 648 |
| HCM Lane V/C Ratio | 0.131 | 0.237 | - | - | - | 0.317 |
| HCM Control Delay (s) | 10.7 | 11.1 | - | - | - | 13.1 |
| HCM Lane LOS | B | B | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.5 | 0.9 | - | - | - | 1.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 51.2 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 69 | 96 | 270 | 1182 | 830 | 105 |
| Future Vol, veh/h | 69 | 96 | 270 | 1182 | 830 | 105 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Free |
| Storage Length | 0 | - | 290 | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 6 | 6 | 8 | 8 | 10 | 10 |
| Mvmt Flow | 78 | 108 | 303 | 1328 | 933 | 118 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2203 | - | 933 | 0 | - | 0 |
| Stage 1 | 933 | - | - | - | - | - |
| Stage 2 | 1270 | - | - | - | - | - |
| Critical Hdwy | 6.92 | - | 4.26 | - | - | - |
| Critical Hdwy Stg 1 | 5.92 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.92 | - | - | - | - | - |
| Follow-up Hdwy | 3.56 | - | 2.28 | - | - | - |
| Pot Cap-1 Maneuver | ~ 36 | 0 | 693 | - | - | 0 |
| Stage 1 | 334 | 0 | - | - | - | 0 |
| Stage 2 | 220 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | ~ 20 | - | 693 | - | - | - |
| Mov Cap-2 Maneuver | ~ 20 | - | - | - | - | - |
| Stage 1 | 188 | - | - | - | - | - |
| Stage 2 | 220 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, $ | 1688.3 | 2.6 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | 693 | - | 20 | - |
| HCM Lane V/C Ratio | 0.438 | - | 3.876 | - |
| HCM Control Delay (s) | 14.2 | - | $ 1688.3 | - |
| HCM Lane LOS | B | - | F | - |
| HCM 95th %tile Q(veh) | 2.2 | - | 10.1 | - |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 71 | 164 | 482 | 731 | 163 | 114 | 677 | 1051 | 975 | 129 | 644 | 23 |
| Future Volume (veh/h) | 71 | 164 | 482 | 731 | 163 | 114 | 677 | 1051 | 975 | 129 | 644 | 23 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 76 | 174 | 513 | 778 | 173 | 121 | 720 | 1118 | 0 | 137 | 685 | 24 |
| 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 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 240 | 252 | 534 | 856 | 463 | 392 | 704 | 1326 | | 161 | 892 | 31 |
| Arrive On Green | 0.13 | 0.13 | 0.13 | 0.25 | 0.25 | 0.25 | 0.20 | 0.37 | 0.00 | 0.09 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1795 | 1885 | 1594 | 3483 | 1885 | 1596 | 3510 | 3610 | 1610 | 1795 | 3530 | 124 |
| Grp Volume(v), veh/h | 76 | 174 | 513 | 778 | 173 | 121 | 720 | 1118 | 0 | 137 | 347 | 362 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1885 | 1594 | 1742 | 1885 | 1596 | 1755 | 1805 | 1610 | 1795 | 1791 | 1863 |
| Q Serve(g_s), s | 5.2 | 11.9 | 18.0 | 29.2 | 10.3 | 8.3 | 27.0 | 38.2 | 0.0 | 10.1 | 24.2 | 24.2 |
| Cycle Q Clear(g_c), s | 5.2 | 11.9 | 18.0 | 29.2 | 10.3 | 8.3 | 27.0 | 38.2 | 0.0 | 10.1 | 24.2 | 24.2 |
| 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 | 240 | 252 | 534 | 856 | 463 | 392 | 704 | 1326 | | 161 | 453 | 471 |
| V/C Ratio(X) | 0.32 | 0.69 | 0.96 | 0.91 | 0.37 | 0.31 | 1.02 | 0.84 | | 0.85 | 0.77 | 0.77 |
| Avail Cap(c_a), veh/h | 240 | 252 | 534 | 1087 | 588 | 498 | 704 | 1326 | | 187 | 453 | 471 |
| 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 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.7 | 55.6 | 43.9 | 49.3 | 42.2 | 41.4 | 53.8 | 39.0 | 0.0 | 60.4 | 46.6 | 46.6 |
| Incr Delay (d2), s/veh | 0.3 | 6.5 | 29.0 | 8.3 | 0.2 | 0.2 | 39.6 | 6.7 | 0.0 | 24.0 | 11.8 | 11.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.4 | 6.1 | 20.9 | 13.7 | 4.8 | 3.3 | 15.7 | 17.9 | 0.0 | 5.7 | 12.2 | 12.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.0 | 62.1 | 73.0 | 57.6 | 42.3 | 41.6 | 93.4 | 45.7 | 0.0 | 84.4 | 58.4 | 58.1 |
| LnGrp LOS | D | E | E | E | D | D | F | D | | F | E | E |
| Approach Vol, veh/h | | 763 | | | 1072 | | | 1838 | A | | 846 | |
| Approach Delay, s/veh | | 68.5 | | | 53.4 | | | 64.4 | | | 62.5 | |
| Approach LOS | | E | | | D | | | E | | | E | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 33.0 | 39.5 | | 38.6 | 17.6 | 54.9 | | 23.5 | | | | |
| Change Period (Y+Rc), s | 6.0 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | 27.0 | 34.0 | | 42.0 | 14.0 | 47.5 | | 18.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 29.0 | 26.2 | | 31.2 | 12.1 | 40.2 | | 20.0 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.1 | | 1.9 | 0.0 | 2.1 | | 0.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 62.1 | | | | | | | | | |
| HCM 6th LOS | | | E | | | | | | | | | |

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 32 | 82 | 52 | 36 | 1 | 163 | 166 | 78 | 4 | 151 | 3 |
| Future Vol, veh/h | 2 | 32 | 82 | 52 | 36 | 1 | 163 | 166 | 78 | 4 | 151 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 95 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 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, % | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 3 | 3 | 3 |
| Mvmt Flow | 2 | 33 | 85 | 54 | 38 | 1 | 170 | 173 | 81 | 4 | 157 | 3 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 740 | 761 | 159 | 780 | 722 | 214 | 160 | 0 | 0 | 254 | 0 | 0 |
| Stage 1 | 167 | 167 | - | 554 | 554 | - | - | - | - | - | - | - |
| Stage 2 | 573 | 594 | - | 226 | 168 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.12 | 6.52 | 6.22 | 4.1 | - | - | 4.13 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.518 | 4.018 | 3.318 | 2.2 | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver | 334 | 336 | 889 | 313 | 353 | 826 | 1432 | - | - | 1305 | - | - |
| Stage 1 | 837 | 762 | - | 517 | 514 | - | - | - | - | - | - | - |
| Stage 2 | 506 | 495 | - | 777 | 759 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 275 | 295 | 889 | 235 | 310 | 826 | 1432 | - | - | 1305 | - | - |
| Mov Cap-2 Maneuver | 275 | 295 | - | 235 | 310 | - | - | - | - | - | - | - |
| Stage 1 | 737 | 760 | - | 455 | 453 | - | - | - | - | - | - | - |
| Stage 2 | 408 | 436 | - | 670 | 757 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 13.2 | 26 | 3.1 | 0.2 |
| HCM LOS | B | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1432 | - | - | 558 | 263 | 1305 | - | - |
| HCM Lane V/C Ratio | 0.119 | - | - | 0.217 | 0.353 | 0.003 | - | - |
| HCM Control Delay (s) | 7.9 | - | - | 13.2 | 26 | 7.8 | 0 | - |
| HCM Lane LOS | A | - | - | B | D | A | A | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 0.8 | 1.5 | 0 | - | - |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 728 | 44 | 532 | 945 | 30 | 391 |
| Future Volume (veh/h) | 728 | 44 | 532 | 945 | 30 | 391 |
| 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 | 1885 | 1870 | 1870 | 1885 | 1856 | 1870 |
| Adj Flow Rate, veh/h | 827 | 50 | 605 | 0 | 34 | 444 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 1 | 2 | 2 | 1 | 3 | 2 |
| Cap, veh/h | 1177 | 597 | 999 | | 341 | 1542 |
| Arrive On Green | 0.34 | 0.34 | 0.28 | 0.00 | 0.04 | 0.43 |
| Sat Flow, veh/h | 3483 | 1585 | 3647 | 1598 | 1767 | 3647 |
| Grp Volume(v), veh/h | 827 | 50 | 605 | 0 | 34 | 444 |
| Grp Sat Flow(s),veh/h/ln | 1742 | 1585 | 1777 | 1598 | 1767 | 1777 |
| Q Serve(g_s), s | 9.0 | 0.9 | 6.5 | 0.0 | 0.5 | 3.5 |
| Cycle Q Clear(g_c), s | 9.0 | 0.9 | 6.5 | 0.0 | 0.5 | 3.5 |
| Prop In Lane | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Lane Grp Cap(c), veh/h | 1177 | 597 | 999 | | 341 | 1542 |
| V/C Ratio(X) | 0.70 | 0.08 | 0.61 | | 0.10 | 0.29 |
| Avail Cap(c_a), veh/h | 1986 | 965 | 2026 | | 1280 | 4458 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 12.6 | 8.8 | 13.6 | 0.0 | 9.9 | 8.0 |
| Incr Delay (d2), s/veh | 0.9 | 0.1 | 0.6 | 0.0 | 0.1 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.0 | 0.0 | 2.1 | 0.0 | 0.2 | 1.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 13.5 | 8.9 | 14.2 | 0.0 | 10.0 | 8.1 |
| LnGrp LOS | B | A | B | | A | A |
| Approach Vol, veh/h | 877 | | 605 | A | | 478 |
| Approach Delay, s/veh | 13.3 | | 14.2 | | | 8.3 |
| Approach LOS | B | | B | | | A |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 24.0 | | 19.8 | 6.7 | 17.3 |
| Change Period (Y+Rc), s | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | | 55.0 | | 25.0 | 25.0 | 25.0 |
| Max Q Clear Time (g_c+I1), s | | 5.5 | | 11.0 | 2.5 | 8.5 |
| Green Ext Time (p_c), s | | 3.2 | | 3.8 | 0.1 | 3.6 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 12.3 |
| HCM 6th LOS | B |

Notes

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 57 | 2 | 2 | 33 | 8 | 271 | 3 | 284 | 21 | 508 | 504 | 75 |
| Future Volume (veh/h) | 57 | 2 | 2 | 33 | 8 | 271 | 3 | 284 | 21 | 508 | 504 | 75 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 58 | 2 | 2 | 34 | 8 | 277 | 3 | 290 | 21 | 518 | 514 | 77 |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cap, veh/h | 462 | 406 | 347 | 489 | 375 | 330 | 294 | 821 | 59 | 706 | 771 | 115 |
| Arrive On Green | 0.08 | 0.22 | 0.22 | 0.06 | 0.20 | 0.20 | 0.01 | 0.24 | 0.22 | 0.24 | 0.48 | 0.46 |
| Sat Flow, veh/h | 1810 | 1844 | 1577 | 1810 | 1900 | 1610 | 1810 | 3415 | 246 | 1810 | 1615 | 242 |
| Grp Volume(v), veh/h | 58 | 2 | 2 | 34 | 8 | 277 | 3 | 153 | 158 | 518 | 0 | 591 |
| Grp Sat Flow(s),veh/h/ln | 1810 | 1805 | 1616 | 1810 | 1900 | 1610 | 1810 | 1805 | 1856 | 1810 | 0 | 1856 |
| Q Serve(g_s), s | 1.6 | 0.1 | 0.1 | 1.0 | 0.2 | 11.3 | 0.1 | 4.8 | 4.9 | 14.0 | 0.0 | 16.8 |
| Cycle Q Clear(g_c), s | 1.6 | 0.1 | 0.1 | 1.0 | 0.2 | 11.3 | 0.1 | 4.8 | 4.9 | 14.0 | 0.0 | 16.8 |
| Prop In Lane | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 0.13 | 1.00 | | 0.13 |
| Lane Grp Cap(c), veh/h | 462 | 397 | 355 | 489 | 375 | 330 | 294 | 434 | 446 | 706 | 0 | 886 |
| V/C Ratio(X) | 0.13 | 0.00 | 0.01 | 0.07 | 0.02 | 0.84 | 0.01 | 0.35 | 0.36 | 0.73 | 0.00 | 0.67 |
| Avail Cap(c_a), veh/h | 585 | 397 | 355 | 705 | 415 | 364 | 546 | 829 | 852 | 793 | 0 | 1123 |
| 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 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.6 | 20.9 | 20.9 | 19.5 | 22.2 | 26.2 | 20.6 | 21.6 | 21.7 | 13.1 | 0.0 | 13.8 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 15.7 | 0.0 | 0.7 | 0.7 | 3.1 | 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(50%),veh/ln | 0.7 | 0.0 | 0.0 | 0.4 | 0.1 | 5.5 | 0.0 | 1.9 | 2.0 | 5.1 | 0.0 | 5.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 18.7 | 20.9 | 20.9 | 19.6 | 22.2 | 41.9 | 20.6 | 22.3 | 22.4 | 16.2 | 0.0 | 15.2 |
| LnGrp LOS | B | C | C | B | C | D | C | C | C | B | A | B |
| Approach Vol, veh/h | | 62 | | | 319 | | | 314 | | | 1109 | |
| Approach Delay, s/veh | | 18.9 | | | 39.0 | | | 22.3 | | | 15.7 | |
| Approach LOS | | B | | | D | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.4 | 36.8 | 9.4 | 18.1 | 20.7 | 20.5 | 7.8 | 19.6 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 4.5 | 4.0 | 5.5 | 4.0 | 4.5 |
| Max Green Setting (Gmax), s | 10.0 | 40.0 | 10.0 | 15.0 | 20.0 | 30.0 | 12.0 | 13.0 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 18.8 | 3.6 | 13.3 | 16.0 | 6.9 | 3.0 | 2.1 |
| Green Ext Time (p_c), s | 0.0 | 5.1 | 0.0 | 0.2 | 0.7 | 2.2 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 21.1 |
| HCM 6th LOS | C |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 14 | 1 | 2 | 13 | 96 | 2 | 121 | 5 | 164 | 165 | 24 |
| Future Vol, veh/h | 9 | 14 | 1 | 2 | 13 | 96 | 2 | 121 | 5 | 164 | 165 | 24 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | Stop | - | - | None | - | - | None |
| Storage Length | - | - | - | 220 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 3 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 10 | 16 | 1 | 2 | 14 | 107 | 2 | 134 | 6 | 182 | 183 | 27 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 711 | 706 | 198 | 710 | 716 | 138 | 211 | 0 | 0 | 140 | 0 | 0 |
| Stage 1 | 562 | 562 | - | 141 | 141 | - | - | - | - | - | - | - |
| Stage 2 | 149 | 144 | - | 569 | 575 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.12 | 6.52 | 6.22 | 4.13 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.518 | 4.018 | 3.318 | 2.227 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 351 | 363 | 848 | 348 | 356 | 910 | 1354 | - | - | 1456 | - | - |
| Stage 1 | 515 | 513 | - | 862 | 780 | - | - | - | - | - | - | - |
| Stage 2 | 858 | 782 | - | 507 | 503 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 265 | 310 | 847 | 298 | 304 | 909 | 1353 | - | - | 1456 | - | - |
| Mov Cap-2 Maneuver | 265 | 310 | - | 298 | 304 | - | - | - | - | - | - | - |
| Stage 1 | 513 | 440 | - | 860 | 778 | - | - | - | - | - | - | - |
| Stage 2 | 741 | 780 | - | 419 | 431 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 18.2 | 9 | 0.1 | 3.6 |
| HCM LOS | C | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1353 | - | - | 299 | 298 | 1051 | 1456 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.089 | 0.007 | 0.115 | 0.125 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | - | 18.2 | 17.2 | 8.9 | 7.8 | 0 | - |
| HCM Lane LOS | A | A | - | C | C | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.3 | 0 | 0.4 | 0.4 | - | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 3 | 113 | 9 | 57 | 122 | 54 | 15 | 42 | 65 | 45 | 44 | 13 |
| Future Volume (veh/h) | 3 | 113 | 9 | 57 | 122 | 54 | 15 | 42 | 65 | 45 | 44 | 13 |
| 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 | 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 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 4 | 133 | 11 | 67 | 144 | 64 | 18 | 49 | 76 | 53 | 52 | 15 |
| 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 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 483 | 473 | 39 | 529 | 311 | 138 | 124 | 132 | 173 | 566 | 457 | 132 |
| Arrive On Green | 0.07 | 0.28 | 0.28 | 0.04 | 0.26 | 0.26 | 0.20 | 0.20 | 0.20 | 0.03 | 0.33 | 0.33 |
| Sat Flow, veh/h | 1753 | 1674 | 138 | 1767 | 1216 | 541 | 105 | 664 | 872 | 1753 | 1371 | 395 |
| Grp Volume(v), veh/h | 4 | 0 | 144 | 67 | 0 | 208 | 143 | 0 | 0 | 53 | 0 | 67 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1812 | 1767 | 0 | 1757 | 1642 | 0 | 0 | 1753 | 0 | 1766 |
| Q Serve(g_s), s | 0.1 | 0.0 | 2.4 | 1.1 | 0.0 | 3.9 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.0 |
| Cycle Q Clear(g_c), s | 0.1 | 0.0 | 2.4 | 1.1 | 0.0 | 3.9 | 2.9 | 0.0 | 0.0 | 0.9 | 0.0 | 1.0 |
| Prop In Lane | 1.00 | | 0.08 | 1.00 | | 0.31 | 0.13 | | 0.53 | 1.00 | | 0.22 |
| Lane Grp Cap(c), veh/h | 483 | 0 | 512 | 529 | 0 | 449 | 429 | 0 | 0 | 566 | 0 | 589 |
| V/C Ratio(X) | 0.01 | 0.00 | 0.28 | 0.13 | 0.00 | 0.46 | 0.33 | 0.00 | 0.00 | 0.09 | 0.00 | 0.11 |
| Avail Cap(c_a), veh/h | 1028 | 0 | 1836 | 1126 | 0 | 1780 | 923 | 0 | 0 | 1173 | 0 | 1745 |
| 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 | 1.00 |
| Uniform Delay (d), s/veh | 9.2 | 0.0 | 11.0 | 10.1 | 0.0 | 12.4 | 13.9 | 0.0 | 0.0 | 10.5 | 0.0 | 9.1 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 1.1 | 0.5 | 0.0 | 0.0 | 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(50%),veh/ln | 0.0 | 0.0 | 0.8 | 0.3 | 0.0 | 1.4 | 1.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 9.2 | 0.0 | 11.5 | 10.3 | 0.0 | 13.5 | 14.3 | 0.0 | 0.0 | 10.5 | 0.0 | 9.2 |
| LnGrp LOS | A | A | B | B | A | B | B | A | A | B | A | A |
| Approach Vol, veh/h | | 148 | | | 275 | | | 143 | | | 120 | |
| Approach Delay, s/veh | | 11.4 | | | 12.7 | | | 14.3 | | | 9.8 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.7 | 16.2 | | 17.7 | 6.7 | 15.1 | 5.3 | 12.3 |
| Change Period (Y+Rc), s | 4.0 | 5.0 | | 4.5 | 4.0 | 5.0 | 4.0 | 4.5 |
| Max Green Setting (Gmax), s | 15.0 | 40.0 | | 39.0 | 15.0 | 40.0 | 15.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 4.4 | | 3.0 | 2.1 | 5.9 | 2.9 | 4.9 |
| Green Ext Time (p_c), s | 0.1 | 1.2 | | 0.3 | 0.0 | 1.9 | 0.1 | 0.6 |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 12.2 |
| HCM 6th LOS | | B |

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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 14 | 152 | 136 | 68 | 55 | 14 |
| Future Vol, veh/h | 14 | 152 | 136 | 68 | 55 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 5 | 5 |
| Mvmt Flow | 16 | 169 | 151 | 76 | 61 | 16 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 227 | 0 | - | 0 | 390 | 189 |
| Stage 1 | - | - | - | - | 189 | - |
| Stage 2 | - | - | - | - | 201 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | 1341 | - | - | - | 608 | 845 |
| Stage 1 | - | - | - | - | 836 | - |
| Stage 2 | - | - | - | - | 826 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1341 | - | - | - | 600 | 845 |
| Mov Cap-2 Maneuver | - | - | - | - | 600 | - |
| Stage 1 | - | - | - | - | 825 | - |
| Stage 2 | - | - | - | - | 826 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.7 | 0 | 11.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1341 | - | - | - | 638 |
| HCM Lane V/C Ratio | 0.012 | - | - | - | 0.12 |
| HCM Control Delay (s) | 7.7 | 0 | - | - | 11.4 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 9 | 1 | 45 | 5 | 2 | 1 | 26 | 279 | 3 | 1 | 366 | 16 |
| Future Vol, veh/h | 9 | 1 | 45 | 5 | 2 | 1 | 26 | 279 | 3 | 1 | 366 | 16 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 10 | 1 | 52 | 6 | 2 | 1 | 30 | 324 | 3 | 1 | 426 | 19 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 825 | 825 | 436 | 850 | 833 | 326 | 445 | 0 | 0 | 327 | 0 | 0 |
| Stage 1 | 438 | 438 | - | 386 | 386 | - | - | - | - | - | - | - |
| Stage 2 | 387 | 387 | - | 464 | 447 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 292 | 308 | 620 | 280 | 304 | 715 | 1115 | - | - | 1233 | - | - |
| Stage 1 | 597 | 579 | - | 637 | 610 | - | - | - | - | - | - | - |
| Stage 2 | 637 | 610 | - | 578 | 573 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 282 | 298 | 620 | 249 | 294 | 715 | 1115 | - | - | 1233 | - | - |
| Mov Cap-2 Maneuver | 282 | 298 | - | 249 | 294 | - | - | - | - | - | - | - |
| Stage 1 | 577 | 578 | - | 616 | 590 | - | - | - | - | - | - | - |
| Stage 2 | 613 | 590 | - | 528 | 572 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 13.1 | 18.2 | 0.7 | 0 |
| HCM LOS | B | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1115 | - | - | 510 | 283 | 1233 | - | - |
| HCM Lane V/C Ratio | 0.027 | - | - | 0.125 | 0.033 | 0.001 | - | - |
| HCM Control Delay (s) | 8.3 | 0 | - | 13.1 | 18.2 | 7.9 | 0 | - |
| HCM Lane LOS | A | A | - | B | C | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.4 | 0.1 | 0 | - | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 52 | 367 | 162 | 171 | 258 | 90 | 321 | 316 | 233 | 136 | 341 | 44 |
| Future Volume (veh/h) | 52 | 367 | 162 | 171 | 258 | 90 | 321 | 316 | 233 | 136 | 341 | 44 |
| 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 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 54 | 382 | 169 | 178 | 269 | 94 | 334 | 329 | 243 | 142 | 355 | 46 |
| 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, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Cap, veh/h | 415 | 482 | 741 | 359 | 553 | 631 | 486 | 519 | 375 | 293 | 491 | 63 |
| Arrive On Green | 0.07 | 0.25 | 0.25 | 0.10 | 0.29 | 0.29 | 0.21 | 0.26 | 0.26 | 0.10 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1810 | 1900 | 1610 | 1810 | 1900 | 1610 | 1810 | 1999 | 1446 | 1795 | 3192 | 410 |
| Grp Volume(v), veh/h | 54 | 382 | 169 | 178 | 269 | 94 | 334 | 296 | 276 | 142 | 198 | 203 |
| Grp Sat Flow(s),veh/h/ln | 1810 | 1900 | 1610 | 1810 | 1900 | 1610 | 1810 | 1805 | 1640 | 1795 | 1791 | 1811 |
| Q Serve(g_s), s | 1.3 | 12.0 | 1.3 | 4.4 | 7.5 | 2.4 | 6.6 | 9.3 | 9.6 | 4.9 | 6.7 | 6.8 |
| Cycle Q Clear(g_c), s | 1.3 | 12.0 | 1.3 | 4.4 | 7.5 | 2.4 | 6.6 | 9.3 | 9.6 | 4.9 | 6.7 | 6.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.88 | 1.00 | | 0.23 |
| Lane Grp Cap(c), veh/h | 415 | 482 | 741 | 359 | 553 | 631 | 486 | 469 | 426 | 293 | 275 | 279 |
| V/C Ratio(X) | 0.13 | 0.79 | 0.23 | 0.50 | 0.49 | 0.15 | 0.69 | 0.63 | 0.65 | 0.48 | 0.72 | 0.73 |
| Avail Cap(c_a), veh/h | 858 | 742 | 961 | 735 | 742 | 791 | 1102 | 987 | 897 | 673 | 560 | 566 |
| 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 | 15.4 | 22.3 | 2.8 | 15.8 | 18.7 | 12.6 | 21.7 | 21.0 | 21.1 | 27.2 | 25.8 | 25.8 |
| Incr Delay (d2), s/veh | 0.1 | 3.3 | 0.2 | 1.1 | 0.7 | 0.1 | 2.5 | 2.0 | 2.4 | 0.5 | 1.3 | 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(50%),veh/ln | 0.5 | 5.4 | 0.5 | 1.8 | 3.1 | 0.8 | 4.4 | 3.8 | 3.6 | 1.9 | 2.7 | 2.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 15.6 | 25.6 | 3.0 | 16.9 | 19.4 | 12.7 | 24.1 | 23.0 | 23.4 | 27.7 | 27.1 | 27.2 |
| LnGrp LOS | B | C | A | B | B | B | C | C | C | C | C | C |
| Approach Vol, veh/h | | 605 | | | 541 | | | 906 | | | 543 | |
| Approach Delay, s/veh | | 18.4 | | | 17.4 | | | 23.5 | | | 27.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 18.2 | 14.3 | 8.3 | 23.1 | 10.9 | 21.6 | 10.7 | 20.7 |
| Change Period (Y+Rc), s | 5.0 | 4.5 | 4.0 | 4.5 | 4.5 | 5.0 | 4.0 | 4.5 |
| Max Green Setting (Gmax), s | 35.0 | 20.0 | 20.0 | 25.0 | 20.0 | 35.0 | 20.0 | 25.0 |
| Max Q Clear Time (g_c+I1), s | 8.6 | 8.8 | 3.3 | 9.5 | 6.9 | 11.6 | 6.4 | 14.0 |
| Green Ext Time (p_c), s | 1.7 | 1.0 | 0.1 | 1.6 | 0.1 | 5.0 | 0.4 | 2.2 |

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

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 75 | 13 | 13 | 43 | 10 | 205 | 9 | 630 | 22 | 333 | 834 | 80 |
| Future Volume (veh/h) | 75 | 13 | 13 | 43 | 10 | 205 | 9 | 630 | 22 | 333 | 834 | 80 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 78 | 14 | 14 | 45 | 10 | 214 | 9 | 656 | 23 | 347 | 869 | 83 |
| 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 249 | 270 | 233 | 433 | 295 | 263 | 189 | 1351 | 47 | 554 | 976 | 917 |
| Arrive On Green | 0.06 | 0.15 | 0.15 | 0.07 | 0.16 | 0.16 | 0.01 | 0.38 | 0.38 | 0.15 | 0.52 | 0.52 |
| Sat Flow, veh/h | 1795 | 1823 | 1570 | 1795 | 1791 | 1598 | 1795 | 3530 | 124 | 1795 | 1885 | 1598 |
| Grp Volume(v), veh/h | 78 | 14 | 14 | 45 | 10 | 214 | 9 | 333 | 346 | 347 | 869 | 83 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1791 | 1603 | 1795 | 1791 | 1598 | 1795 | 1791 | 1863 | 1795 | 1885 | 1598 |
| Q Serve(g_s), s | 2.5 | 0.4 | 0.5 | 1.4 | 0.3 | 8.8 | 0.2 | 9.6 | 9.6 | 7.2 | 28.1 | 1.6 |
| Cycle Q Clear(g_c), s | 2.5 | 0.4 | 0.5 | 1.4 | 0.3 | 8.8 | 0.2 | 9.6 | 9.6 | 7.2 | 28.1 | 1.6 |
| Prop In Lane | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 0.07 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 249 | 265 | 238 | 433 | 295 | 263 | 189 | 685 | 713 | 554 | 976 | 917 |
| V/C Ratio(X) | 0.31 | 0.05 | 0.06 | 0.10 | 0.03 | 0.81 | 0.05 | 0.49 | 0.49 | 0.63 | 0.89 | 0.09 |
| Avail Cap(c_a), veh/h | 542 | 394 | 353 | 697 | 394 | 352 | 563 | 1051 | 1093 | 686 | 1106 | 1028 |
| 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 | 23.0 | 24.9 | 25.0 | 21.2 | 23.9 | 27.4 | 15.2 | 16.0 | 16.0 | 10.0 | 14.7 | 6.5 |
| Incr Delay (d2), s/veh | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 10.2 | 0.1 | 0.7 | 0.7 | 0.5 | 8.7 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 0.2 | 0.2 | 0.5 | 0.1 | 3.9 | 0.1 | 3.6 | 3.8 | 2.3 | 12.1 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 23.3 | 25.0 | 25.1 | 21.2 | 24.0 | 37.7 | 15.4 | 16.7 | 16.6 | 10.5 | 23.4 | 6.6 |
| LnGrp LOS | C | C | C | C | C | D | B | B | B | B | C | A |
| Approach Vol, veh/h | | 106 | | | 269 | | | 688 | | | 1299 | |
| Approach Delay, s/veh | | 23.7 | | | 34.4 | | | 16.6 | | | 18.9 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.8 | 39.8 | 7.9 | 15.7 | 14.0 | 30.6 | 9.0 | 14.6 |
| Change Period (Y+Rc), s | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 |
| Max Green Setting (Gmax), s | 15.0 | 40.0 | 15.0 | 15.0 | 15.0 | 40.0 | 15.0 | 15.0 |
| Max Q Clear Time (g_c+I1), s | 11.2 | 30.1 | 4.5 | 10.8 | 9.2 | 11.6 | 3.4 | 2.5 |
| Green Ext Time (p_c), s | 0.0 | 5.2 | 0.0 | 0.5 | 0.3 | 5.9 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 20.2 |
| HCM 6th LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 214 | 77 | 28 | 11 | 97 | 118 | 22 | 316 | 10 | 241 | 399 | 211 |
| Future Volume (veh/h) | 214 | 77 | 28 | 11 | 97 | 118 | 22 | 316 | 10 | 241 | 399 | 211 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 230 | 83 | 30 | 12 | 104 | 127 | 24 | 340 | 11 | 259 | 429 | 227 |
| 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, % | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |
| Cap, veh/h | 432 | 401 | 145 | 387 | 142 | 173 | 291 | 456 | 15 | 427 | 660 | 560 |
| Arrive On Green | 0.15 | 0.31 | 0.31 | 0.02 | 0.19 | 0.19 | 0.03 | 0.25 | 0.25 | 0.13 | 0.35 | 0.35 |
| Sat Flow, veh/h | 1767 | 1301 | 470 | 1781 | 766 | 936 | 1795 | 1816 | 59 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 230 | 0 | 113 | 12 | 0 | 231 | 24 | 0 | 351 | 259 | 429 | 227 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1771 | 1781 | 0 | 1702 | 1795 | 0 | 1875 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 6.4 | 0.0 | 3.2 | 0.4 | 0.0 | 8.6 | 0.7 | 0.0 | 11.6 | 6.7 | 12.9 | 7.3 |
| Cycle Q Clear(g_c), s | 6.4 | 0.0 | 3.2 | 0.4 | 0.0 | 8.6 | 0.7 | 0.0 | 11.6 | 6.7 | 12.9 | 7.3 |
| Prop In Lane | 1.00 | | 0.27 | 1.00 | | 0.55 | 1.00 | | 0.03 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 432 | 0 | 546 | 387 | 0 | 316 | 291 | 0 | 471 | 427 | 660 | 560 |
| V/C Ratio(X) | 0.53 | 0.00 | 0.21 | 0.03 | 0.00 | 0.73 | 0.08 | 0.00 | 0.75 | 0.61 | 0.65 | 0.41 |
| Avail Cap(c_a), veh/h | 961 | 0 | 790 | 1007 | 0 | 633 | 633 | 0 | 976 | 586 | 974 | 825 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.8 | 0.0 | 17.2 | 21.2 | 0.0 | 25.8 | 17.8 | 0.0 | 23.2 | 15.3 | 18.3 | 16.4 |
| Incr Delay (d2), s/veh | 1.0 | 0.0 | 0.4 | 0.0 | 0.0 | 6.8 | 0.1 | 0.0 | 4.0 | 1.4 | 1.9 | 0.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.4 | 0.0 | 1.2 | 0.1 | 0.0 | 3.8 | 0.3 | 0.0 | 5.2 | 2.5 | 5.3 | 2.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 17.8 | 0.0 | 17.6 | 21.2 | 0.0 | 32.6 | 17.9 | 0.0 | 27.2 | 16.7 | 20.1 | 17.2 |
| LnGrp LOS | B | A | B | C | A | C | B | A | C | B | C | B |
| Approach Vol, veh/h | | 343 | | | 243 | | | 375 | | | 915 | |
| Approach Delay, s/veh | | 17.7 | | | 32.1 | | | 26.6 | | | 18.4 | |
| Approach LOS | | B | | | C | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.2 | 29.2 | 13.9 | 18.0 | 13.0 | 22.4 | 5.6 | 26.2 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.5 | 4.0 | 5.5 | 4.0 | 5.5 |
| Max Green Setting (Gmax), s | 15.0 | 35.0 | 30.0 | 25.0 | 15.0 | 35.0 | 25.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 12.7 | 14.9 | 8.4 | 10.6 | 8.7 | 13.6 | 2.4 | 5.2 |
| Green Ext Time (p_c), s | 0.0 | 5.6 | 0.6 | 1.9 | 0.4 | 3.3 | 0.0 | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 21.7 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Int Delay, s/veh | 10.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 40 | 176 | 8 | 14 | 228 | 213 | 3 | 15 | 8 | 285 | 22 | 51 |
| Future Vol, veh/h | 40 | 176 | 8 | 14 | 228 | 213 | 3 | 15 | 8 | 285 | 22 | 51 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | Yield | - | - | None | - | - | Free |
| Storage Length | 250 | - | - | 100 | - | 0 | - | - | - | 130 | - | 50 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 5 | 5 | 5 | 2 | 2 | 2 | 12 | 12 | 12 | 1 | 1 | 1 |
| Mvmt Flow | 42 | 185 | 8 | 15 | 240 | 224 | 3 | 16 | 8 | 300 | 23 | 54 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 240 | 0 | 0 | 193 | 0 | 0 | 555 | 543 | 189 | 555 | 547 | - |
| Stage 1 | - | - | - | - | - | - | 273 | 273 | - | 270 | 270 | - |
| Stage 2 | - | - | - | - | - | - | 282 | 270 | - | 285 | 277 | - |
| Critical Hdwy | 4.15 | - | - | 4.12 | - | - | 7.22 | 6.62 | 6.32 | 7.11 | 6.51 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.22 | 5.62 | - | 6.11 | 5.51 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.22 | 5.62 | - | 6.11 | 5.51 | - |
| Follow-up Hdwy | 2.245 | - | - | 2.218 | - | - | 3.608 | 4.108 | 3.408 | 3.509 | 4.009 | - |
| Pot Cap-1 Maneuver | 1309 | - | - | 1380 | - | - | 427 | 433 | 828 | 444 | 446 | 0 |
| Stage 1 | - | - | - | - | - | - | 712 | 666 | - | 738 | 688 | 0 |
| Stage 2 | - | - | - | - | - | - | 704 | 668 | - | 724 | 683 | 0 |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1309 | - | - | 1380 | - | - | 396 | 414 | 828 | 413 | 427 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 396 | 414 | - | 413 | 427 | - |
| Stage 1 | - | - | - | - | - | - | 689 | 645 | - | 714 | 680 | - |
| Stage 2 | - | - | - | - | - | - | 673 | 661 | - | 677 | 661 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.4 | 0.2 | 12.8 | 32.2 |
| HCM LOS | | | B | D |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 | SBLn3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 486 | 1309 | - | - | 1380 | - | - | 413 | 427 | - |
| HCM Lane V/C Ratio | 0.056 | 0.032 | - | - | 0.011 | - | - | 0.726 | 0.054 | - |
| HCM Control Delay (s) | 12.8 | 7.8 | - | - | 7.6 | - | - | 33.6 | 13.9 | 0 |
| HCM Lane LOS | B | A | - | - | A | - | - | D | B | A |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0 | - | - | 5.7 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 384 | 79 | 3 | 363 | 23 | 82 | 22 | 12 | 17 | 6 | 2 |
| Future Vol, veh/h | 3 | 384 | 79 | 3 | 363 | 23 | 82 | 22 | 12 | 17 | 6 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 2 | 1 | 1 | 1 | 6 | 6 | 6 | 4 | 4 | 4 |
| Mvmt Flow | 3 | 404 | 83 | 3 | 382 | 24 | 86 | 23 | 13 | 18 | 6 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 406 | 0 | 0 | 487 | 0 | 0 | 652 | 864 | 244 | 620 | 893 | 203 |
| Stage 1 | - | - | - | - | - | - | 452 | 452 | - | 400 | 400 | - |
| Stage 2 | - | - | - | - | - | - | 200 | 412 | - | 220 | 493 | - |
| Critical Hdwy | 4.14 | - | - | 4.12 | - | - | 7.62 | 6.62 | 7.02 | 7.58 | 6.58 | 6.98 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.62 | 5.62 | - | 6.58 | 5.58 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.62 | 5.62 | - | 6.58 | 5.58 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.21 | - | - | 3.56 | 4.06 | 3.36 | 3.54 | 4.04 | 3.34 |
| Pot Cap-1 Maneuver | 1149 | - | - | 1079 | - | - | 345 | 283 | 744 | 368 | 276 | 798 |
| Stage 1 | - | - | - | - | - | - | 546 | 559 | - | 592 | 595 | - |
| Stage 2 | - | - | - | - | - | - | 772 | 583 | - | 756 | 540 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1149 | - | - | 1079 | - | - | 336 | 281 | 744 | 337 | 274 | 798 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 336 | 281 | - | 337 | 274 | - |
| Stage 1 | - | - | - | - | - | - | 544 | 557 | - | 590 | 593 | - |
| Stage 2 | - | - | - | - | - | - | 759 | 581 | - | 709 | 538 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.1 | 21.2 | 16.7 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 343 | 1149 | - | - | 1079 | - | - | 334 |
| HCM Lane V/C Ratio | 0.356 | 0.003 | - | - | 0.003 | - | - | 0.079 |
| HCM Control Delay (s) | 21.2 | 8.1 | 0 | - | 8.3 | 0 | - | 16.7 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 1.6 | 0 | - | - | 0 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 48 | 473 | 167 | 17 | 407 | 9 | 106 | 14 | 14 | 8 | 8 | 25 |
| Future Vol, veh/h | 48 | 473 | 167 | 17 | 407 | 9 | 106 | 14 | 14 | 8 | 8 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 200 | - | - | 200 | - | - | 130 | - | - | - | - | - |
| 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 | 3 | 3 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 49 | 488 | 172 | 18 | 420 | 9 | 109 | 14 | 14 | 8 | 8 | 26 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 429 | 0 | 0 | 660 | 0 | 0 | 1150 | 1137 | 574 | 1147 | 1219 | 425 |
| Stage 1 | - | - | - | - | - | - | 672 | 672 | - | 461 | 461 | - |
| Stage 2 | - | - | - | - | - | - | 478 | 465 | - | 686 | 758 | - |
| Critical Hdwy | 4.11 | - | - | 4.12 | - | - | 7.13 | 6.53 | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.209 | - | - | 2.218 | - | - | 3.527 | 4.027 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1136 | - | - | 928 | - | - | 174 | 201 | 516 | 178 | 182 | 634 |
| Stage 1 | - | - | - | - | - | - | 444 | 453 | - | 584 | 569 | - |
| Stage 2 | - | - | - | - | - | - | 566 | 561 | - | 441 | 418 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1136 | - | - | 928 | - | - | 153 | 189 | 516 | 155 | 171 | 634 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 153 | 189 | - | 155 | 171 | - |
| Stage 1 | - | - | - | - | - | - | 425 | 434 | - | 559 | 558 | - |
| Stage 2 | - | - | - | - | - | - | 525 | 550 | - | 397 | 400 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.6 | 0.4 | 61.3 | 19.1 |
| HCM LOS | | | F | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 153 | 277 | 1136 | - | - | 928 | - | - | 297 |
| HCM Lane V/C Ratio | 0.714 | 0.104 | 0.044 | - | - | 0.019 | - | - | 0.142 |
| HCM Control Delay (s) | 72.4 | 19.5 | 8.3 | - | - | 9 | - | - | 19.1 |
| HCM Lane LOS | F | C | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 4.2 | 0.3 | 0.1 | - | - | 0.1 | - | - | 0.5 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 319 | 0 | 148 | 155 |
| Future Vol, veh/h | 0 | 0 | 319 | 0 | 148 | 155 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 96 | 92 | 96 | 96 |
| Heavy Vehicles, % | 2 | 2 | 1 | 2 | 7 | 7 |
| Mvmt Flow | 0 | 0 | 332 | 0 | 154 | 161 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 332 | 0 | - | 0 | 332 | 332 |
| Stage 1 | - | - | - | - | 332 | - |
| Stage 2 | - | - | - | - | 0 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.47 | 6.27 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.47 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.47 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.563 | 3.363 |
| Pot Cap-1 Maneuver | 1227 | - | - | - | 653 | 698 |
| Stage 1 | - | - | - | - | 716 | - |
| Stage 2 | - | - | - | - | - | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1227 | - | - | - | 653 | 698 |
| Mov Cap-2 Maneuver | - | - | - | - | 653 | - |
| Stage 1 | - | - | - | - | 716 | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 14.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1227 | - | - | - | 675 |
| HCM Lane V/C Ratio | - | - | - | - | 0.468 |
| HCM Control Delay (s) | 0 | - | - | - | 14.9 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 2.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 40 | 71 | 447 | 72 | 169 | 7 | 540 | 78 | 39 | 2 | 91 | 54 |
| Future Volume (veh/h) | 40 | 71 | 447 | 72 | 169 | 7 | 540 | 78 | 39 | 2 | 91 | 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 | | 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 | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1885 | 1885 | 1885 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h | 49 | 87 | 0 | 88 | 206 | 9 | 659 | 95 | 0 | 2 | 111 | 0 |
| 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, % | 7 | 7 | 7 | 2 | 2 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| Cap, veh/h | 253 | 256 | | 366 | 303 | 13 | 880 | 1727 | | 275 | 445 | |
| Arrive On Green | 0.04 | 0.14 | 0.00 | 0.07 | 0.17 | 0.17 | 0.36 | 0.48 | 0.00 | 0.00 | 0.12 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 0 | 1781 | 1778 | 78 | 1795 | 3676 | 0 | 1810 | 3705 | 0 |
| Grp Volume(v), veh/h | 49 | 87 | 0 | 88 | 0 | 215 | 659 | 95 | 0 | 2 | 111 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 0 | 1781 | 0 | 1856 | 1795 | 1791 | 0 | 1810 | 1805 | 0 |
| Q Serve(g_s), s | 1.6 | 2.9 | 0.0 | 2.7 | 0.0 | 7.2 | 18.7 | 0.9 | 0.0 | 0.1 | 1.9 | 0.0 |
| Cycle Q Clear(g_c), s | 1.6 | 2.9 | 0.0 | 2.7 | 0.0 | 7.2 | 18.7 | 0.9 | 0.0 | 0.1 | 1.9 | 0.0 |
| Prop In Lane | 1.00 | | 0.00 | 1.00 | | 0.04 | 1.00 | | 0.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 253 | 256 | | 366 | 0 | 316 | 880 | 1727 | | 275 | 445 | |
| V/C Ratio(X) | 0.19 | 0.34 | | 0.24 | 0.00 | 0.68 | 0.75 | 0.06 | | 0.01 | 0.25 | |
| Avail Cap(c_a), veh/h | 433 | 539 | | 638 | 0 | 696 | 1174 | 2150 | | 678 | 1083 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 22.9 | 25.7 | 0.0 | 21.7 | 0.0 | 25.9 | 12.6 | 9.2 | 0.0 | 25.5 | 26.4 | 0.0 |
| Incr Delay (d2), s/veh | 0.3 | 1.1 | 0.0 | 0.3 | 0.0 | 3.6 | 2.3 | 0.0 | 0.0 | 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(50%),veh/ln | 0.6 | 1.3 | 0.0 | 1.1 | 0.0 | 3.2 | 6.9 | 0.3 | 0.0 | 0.0 | 0.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 23.2 | 26.9 | 0.0 | 22.0 | 0.0 | 29.6 | 15.0 | 9.2 | 0.0 | 25.5 | 26.7 | 0.0 |
| LnGrp LOS | C | C | | C | A | C | B | A | | C | C | |
| Approach Vol, veh/h | | 136 | A | | 303 | | | 754 | A | | 113 | A |
| Approach Delay, s/veh | | 25.5 | | | 27.4 | | | 14.2 | | | 26.7 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 29.1 | 13.2 | 8.0 | 16.3 | 5.2 | 37.1 | 9.8 | 14.5 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 35.0 | 20.0 | 10.0 | 25.0 | 15.0 | 40.0 | 15.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 20.7 | 3.9 | 3.6 | 9.2 | 2.1 | 2.9 | 4.7 | 4.9 |
| Green Ext Time (p_c), s | 3.3 | 0.5 | 0.0 | 1.3 | 0.0 | 0.6 | 0.1 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 19.5 |
| HCM 6th LOS | B |

**Notes**

User approved pedestrian interval to be less than phase max green.

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 137 | 445 | 192 | 148 | 521 | 117 | 231 | 353 | 105 | 173 | 453 | 123 |
| Future Volume (veh/h) | 137 | 445 | 192 | 148 | 521 | 117 | 231 | 353 | 105 | 173 | 453 | 123 |
| 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 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 143 | 464 | 200 | 154 | 543 | 122 | 241 | 368 | 109 | 180 | 472 | 128 |
| 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 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 327 | 660 | 282 | 327 | 802 | 179 | 400 | 738 | 216 | 422 | 677 | 182 |
| Arrive On Green | 0.08 | 0.27 | 0.27 | 0.09 | 0.28 | 0.28 | 0.13 | 0.27 | 0.27 | 0.10 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1795 | 2434 | 1041 | 1795 | 2902 | 649 | 1781 | 2708 | 791 | 1781 | 2763 | 744 |
| Grp Volume(v), veh/h | 143 | 340 | 324 | 154 | 334 | 331 | 241 | 240 | 237 | 180 | 302 | 298 |
| Grp Sat Flow(s),veh/h/ln | 1795 | 1791 | 1684 | 1795 | 1791 | 1760 | 1781 | 1777 | 1722 | 1781 | 1777 | 1730 |
| Q Serve(g_s), s | 4.2 | 12.8 | 13.0 | 4.5 | 12.4 | 12.5 | 7.3 | 8.5 | 8.7 | 5.5 | 11.6 | 11.8 |
| Cycle Q Clear(g_c), s | 4.2 | 12.8 | 13.0 | 4.5 | 12.4 | 12.5 | 7.3 | 8.5 | 8.7 | 5.5 | 11.6 | 11.8 |
| Prop In Lane | 1.00 | | 0.62 | 1.00 | | 0.37 | 1.00 | | 0.46 | 1.00 | | 0.43 |
| Lane Grp Cap(c), veh/h | 327 | 486 | 457 | 327 | 495 | 486 | 400 | 484 | 469 | 422 | 435 | 424 |
| V/C Ratio(X) | 0.44 | 0.70 | 0.71 | 0.47 | 0.68 | 0.68 | 0.60 | 0.49 | 0.51 | 0.43 | 0.69 | 0.70 |
| Avail Cap(c_a), veh/h | 540 | 718 | 675 | 532 | 718 | 705 | 644 | 712 | 690 | 715 | 712 | 693 |
| 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 | 18.3 | 24.6 | 24.6 | 18.3 | 24.1 | 24.1 | 18.2 | 22.9 | 23.0 | 18.1 | 25.7 | 25.8 |
| Incr Delay (d2), s/veh | 0.9 | 1.9 | 2.0 | 1.1 | 1.6 | 1.7 | 1.5 | 0.8 | 0.8 | 0.7 | 2.0 | 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(50%),veh/ln | 1.7 | 5.4 | 5.2 | 1.9 | 5.2 | 5.2 | 3.0 | 3.5 | 3.5 | 2.2 | 4.9 | 4.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 19.2 | 26.4 | 26.7 | 19.4 | 25.7 | 25.8 | 19.7 | 23.7 | 23.8 | 18.8 | 27.7 | 27.9 |
| LnGrp LOS | B | C | C | B | C | C | B | C | C | B | C | C |
| Approach Vol, veh/h | | 807 | | | 819 | | | 718 | | | 780 | |
| Approach Delay, s/veh | | 25.2 | | | 24.6 | | | 22.4 | | | 25.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.1 | 25.7 | 12.7 | 25.4 | 11.5 | 25.3 | 14.8 | 23.3 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 15.0 | 30.0 | 20.0 | 30.0 | 15.0 | 30.0 | 20.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 10.3 | 14.5 | 7.5 | 10.7 | 6.5 | 15.0 | 9.3 | 13.8 |
| Green Ext Time (p_c), s | 0.2 | 3.7 | 0.4 | 2.8 | 0.2 | 3.7 | 0.5 | 3.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 24.5 |
| HCM 6th LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 94 | 206 | 84 | 45 | 251 | 153 | 85 | 421 | 24 | 122 | 441 | 129 |
| Future Volume (veh/h) | 94 | 206 | 84 | 45 | 251 | 153 | 85 | 421 | 24 | 122 | 441 | 129 |
| 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 | 1841 | 1841 | 1841 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 101 | 222 | 90 | 48 | 270 | 165 | 91 | 453 | 26 | 131 | 474 | 139 |
| 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, % | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 132 | 654 | 257 | 60 | 483 | 285 | 119 | 870 | 50 | 172 | 770 | 224 |
| Arrive On Green | 0.08 | 0.27 | 0.27 | 0.03 | 0.23 | 0.23 | 0.07 | 0.25 | 0.25 | 0.10 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1753 | 2448 | 960 | 1781 | 2141 | 1266 | 1781 | 3415 | 195 | 1781 | 2710 | 789 |
| Grp Volume(v), veh/h | 101 | 156 | 156 | 48 | 222 | 213 | 91 | 235 | 244 | 131 | 310 | 303 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 1749 | 1660 | 1781 | 1777 | 1630 | 1781 | 1777 | 1834 | 1781 | 1777 | 1722 |
| Q Serve(g_s), s | 3.2 | 4.1 | 4.4 | 1.5 | 6.4 | 6.7 | 2.9 | 6.5 | 6.6 | 4.1 | 8.7 | 8.8 |
| Cycle Q Clear(g_c), s | 3.2 | 4.1 | 4.4 | 1.5 | 6.4 | 6.7 | 2.9 | 6.5 | 6.6 | 4.1 | 8.7 | 8.8 |
| Prop In Lane | 1.00 | | 0.58 | 1.00 | | 0.78 | 1.00 | | 0.11 | 1.00 | | 0.46 |
| Lane Grp Cap(c), veh/h | 132 | 467 | 444 | 60 | 401 | 368 | 119 | 453 | 467 | 172 | 505 | 490 |
| V/C Ratio(X) | 0.77 | 0.33 | 0.35 | 0.81 | 0.56 | 0.58 | 0.76 | 0.52 | 0.52 | 0.76 | 0.61 | 0.62 |
| Avail Cap(c_a), veh/h | 458 | 914 | 867 | 465 | 928 | 852 | 465 | 928 | 958 | 465 | 928 | 900 |
| 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 | 26.1 | 16.9 | 17.0 | 27.6 | 19.7 | 19.8 | 26.3 | 18.4 | 18.4 | 25.3 | 17.8 | 17.9 |
| Incr Delay (d2), s/veh | 9.0 | 0.6 | 0.7 | 21.7 | 1.7 | 2.0 | 9.7 | 1.3 | 1.3 | 6.9 | 1.7 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 1.6 | 1.6 | 1.0 | 2.5 | 2.5 | 1.5 | 2.6 | 2.7 | 2.0 | 3.4 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 35.0 | 17.5 | 17.7 | 49.3 | 21.4 | 21.8 | 36.1 | 19.7 | 19.7 | 32.2 | 19.5 | 19.7 |
| LnGrp LOS | D | B | B | D | C | C | D | B | B | C | B | B |
| Approach Vol, veh/h | | 413 | | | 483 | | | 570 | | | 744 | |
| Approach Delay, s/veh | | 21.9 | | | 24.4 | | | 22.3 | | | 21.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.3 | 17.9 | 10.5 | 19.6 | 6.9 | 20.3 | 8.8 | 21.3 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 15.0 | 30.0 | 15.0 | 30.0 | 15.0 | 30.0 | 15.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 5.2 | 8.7 | 6.1 | 8.6 | 3.5 | 6.4 | 4.9 | 10.8 |
| Green Ext Time (p_c), s | 0.1 | 3.6 | 0.2 | 4.0 | 0.1 | 2.5 | 0.1 | 5.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 22.5 |
| HCM 6th LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 124 | 325 | 81 | 15 | 405 | 217 | 105 | 165 | 17 | 137 | 228 | 144 |
| Future Volume (veh/h) | 124 | 325 | 81 | 15 | 405 | 217 | 105 | 165 | 17 | 137 | 228 | 144 |
| 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 | | 0.99 | 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 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 128 | 335 | 84 | 15 | 418 | 224 | 108 | 170 | 18 | 141 | 235 | 148 |
| 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 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 169 | 1157 | 286 | 17 | 727 | 385 | 141 | 503 | 53 | 182 | 377 | 228 |
| Arrive On Green | 0.10 | 0.41 | 0.41 | 0.01 | 0.32 | 0.32 | 0.08 | 0.16 | 0.16 | 0.10 | 0.18 | 0.18 |
| Sat Flow, veh/h | 1781 | 2823 | 698 | 1781 | 2243 | 1190 | 1781 | 3242 | 339 | 1781 | 2119 | 1280 |
| Grp Volume(v), veh/h | 128 | 209 | 210 | 15 | 330 | 312 | 108 | 92 | 96 | 141 | 195 | 188 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1745 | 1781 | 1777 | 1656 | 1781 | 1777 | 1804 | 1781 | 1777 | 1622 |
| Q Serve(g_s), s | 4.3 | 4.9 | 5.0 | 0.5 | 9.5 | 9.7 | 3.7 | 2.9 | 2.9 | 4.8 | 6.3 | 6.6 |
| Cycle Q Clear(g_c), s | 4.3 | 4.9 | 5.0 | 0.5 | 9.5 | 9.7 | 3.7 | 2.9 | 2.9 | 4.8 | 6.3 | 6.6 |
| Prop In Lane | 1.00 | | 0.40 | 1.00 | | 0.72 | 1.00 | | 0.19 | 1.00 | | 0.79 |
| Lane Grp Cap(c), veh/h | 169 | 728 | 715 | 17 | 576 | 536 | 141 | 275 | 280 | 182 | 316 | 289 |
| V/C Ratio(X) | 0.76 | 0.29 | 0.29 | 0.91 | 0.57 | 0.58 | 0.77 | 0.33 | 0.34 | 0.78 | 0.62 | 0.65 |
| Avail Cap(c_a), veh/h | 519 | 1094 | 1074 | 433 | 1007 | 939 | 433 | 576 | 584 | 433 | 576 | 525 |
| 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 | 27.2 | 12.2 | 12.2 | 30.6 | 17.3 | 17.4 | 27.9 | 23.2 | 23.3 | 27.0 | 23.4 | 23.6 |
| Incr Delay (d2), s/veh | 8.0 | 0.3 | 0.3 | 79.2 | 0.9 | 1.0 | 6.4 | 0.3 | 0.3 | 5.2 | 0.7 | 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(50%),veh/ln | 2.0 | 1.6 | 1.6 | 0.6 | 3.6 | 3.4 | 1.7 | 1.1 | 1.2 | 2.2 | 2.5 | 2.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 35.2 | 12.5 | 12.5 | 109.7 | 18.2 | 18.4 | 34.3 | 23.5 | 23.5 | 32.2 | 24.2 | 24.5 |
| LnGrp LOS | D | B | B | F | B | B | C | C | C | C | C | C |
| Approach Vol, veh/h | | 547 | | | 657 | | | 296 | | | 524 | |
| Approach Delay, s/veh | | 17.8 | | | 20.4 | | | 27.4 | | | 26.5 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.9 | 25.0 | 11.3 | 14.6 | 5.6 | 30.3 | 9.9 | 16.0 |
| 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 | 18.6 | 35.0 | 15.0 | 20.0 | 15.0 | 38.0 | 15.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 6.3 | 11.7 | 6.8 | 4.9 | 2.5 | 7.0 | 5.7 | 8.6 |
| Green Ext Time (p_c), s | 0.3 | 4.0 | 0.2 | 0.5 | 0.0 | 2.9 | 0.1 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 22.3 |
| HCM 6th LOS | C |

Notes

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 13 | 171 | 78 | 51 | 201 | 10 | 137 | 127 | 27 | 9 | 120 | 24 |
| Future Volume (veh/h) | 13 | 171 | 78 | 51 | 201 | 10 | 137 | 127 | 27 | 9 | 120 | 24 |
| 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 | 1695 | 1695 | 1695 | 1723 | 1723 | 1723 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 |
| Adj Flow Rate, veh/h | 14 | 190 | 87 | 57 | 223 | 11 | 152 | 141 | 30 | 10 | 133 | 27 |
| 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, % | 4 | 4 | 4 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 122 | 675 | 289 | 253 | 809 | 40 | 189 | 568 | 121 | 374 | 226 | 46 |
| Arrive On Green | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.11 | 0.41 | 0.41 | 0.16 | 0.16 | 0.16 |
| Sat Flow, veh/h | 52 | 2093 | 896 | 375 | 2507 | 123 | 1654 | 1388 | 295 | 1125 | 1400 | 284 |
| Grp Volume(v), veh/h | 157 | 0 | 134 | 153 | 0 | 138 | 152 | 0 | 171 | 10 | 0 | 160 |
| Grp Sat Flow(s),veh/h/ln | 1662 | 0 | 1380 | 1461 | 0 | 1545 | 1654 | 0 | 1683 | 1125 | 0 | 1685 |
| Q Serve(g_s), s | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 2.5 | 3.3 | 0.0 | 2.5 | 0.3 | 0.0 | 3.3 |
| Cycle Q Clear(g_c), s | 2.6 | 0.0 | 2.7 | 2.5 | 0.0 | 2.5 | 3.3 | 0.0 | 2.5 | 0.3 | 0.0 | 3.3 |
| Prop In Lane | 0.09 | | 0.65 | 0.37 | | 0.08 | 1.00 | | 0.18 | 1.00 | | 0.17 |
| Lane Grp Cap(c), veh/h | 641 | 0 | 445 | 604 | 0 | 498 | 189 | 0 | 689 | 374 | 0 | 272 |
| V/C Ratio(X) | 0.24 | 0.00 | 0.30 | 0.25 | 0.00 | 0.28 | 0.80 | 0.00 | 0.25 | 0.03 | 0.00 | 0.59 |
| Avail Cap(c_a), veh/h | 1413 | 0 | 1109 | 1261 | 0 | 1242 | 886 | 0 | 2254 | 947 | 0 | 1128 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 9.4 | 0.0 | 9.5 | 9.4 | 0.0 | 9.4 | 16.1 | 0.0 | 7.2 | 13.2 | 0.0 | 14.5 |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 0.5 | 0.3 | 0.0 | 0.4 | 3.0 | 0.0 | 0.2 | 0.0 | 0.0 | 2.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 0.0 | 0.6 | 0.7 | 0.0 | 0.7 | 1.2 | 0.0 | 0.7 | 0.1 | 0.0 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 9.7 | 0.0 | 10.0 | 9.7 | 0.0 | 9.8 | 19.2 | 0.0 | 7.4 | 13.3 | 0.0 | 16.5 |
| LnGrp LOS | A | A | B | A | A | A | B | A | A | B | A | B |
| Approach Vol, veh/h | | 291 | | | 291 | | | 323 | | | 170 | |
| Approach Delay, s/veh | | 9.9 | | | 9.8 | | | 12.9 | | | 16.3 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | 2 | 4 | 6 | 7 | 8 |
|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 17.0 | 20.3 | 17.0 | 9.3 | 11.0 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 30.0 | 50.0 | 30.0 | 20.0 | 25.0 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 4.5 | 4.7 | 5.3 | 5.3 |
| Green Ext Time (p_c), s | 2.5 | 1.1 | 2.4 | 0.0 | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 11.8 |
| HCM 6th LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 37 | 240 | 86 | 122 | 276 | 39 | 175 | 286 | 76 | 66 | 233 | 44 |
| Future Volume (veh/h) | 37 | 240 | 86 | 122 | 276 | 39 | 175 | 286 | 76 | 66 | 233 | 44 |
| 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 | 1723 | 1723 | 1723 | 1709 | 1709 | 1709 | 1723 | 1723 | 1723 | 1723 | 1723 | 1723 |
| Adj Flow Rate, veh/h | 39 | 253 | 91 | 128 | 291 | 41 | 184 | 301 | 0 | 69 | 245 | 46 |
| 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 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 503 | 979 | 343 | 516 | 1307 | 182 | 361 | 774 | | 321 | 467 | 86 |
| Arrive On Green | 0.02 | 0.41 | 0.41 | 0.07 | 0.46 | 0.46 | 0.12 | 0.24 | 0.00 | 0.05 | 0.17 | 0.17 |
| Sat Flow, veh/h | 1641 | 2374 | 832 | 1628 | 2860 | 399 | 1641 | 3359 | 0 | 1641 | 2756 | 509 |
| Grp Volume(v), veh/h | 39 | 172 | 172 | 128 | 164 | 168 | 184 | 301 | 0 | 69 | 144 | 147 |
| Grp Sat Flow(s),veh/h/ln | 1641 | 1637 | 1569 | 1628 | 1624 | 1635 | 1641 | 1637 | 0 | 1641 | 1637 | 1629 |
| Q Serve(g_s), s | 1.2 | 5.9 | 6.1 | 3.7 | 5.2 | 5.3 | 7.4 | 6.6 | 0.0 | 2.9 | 6.8 | 7.0 |
| Cycle Q Clear(g_c), s | 1.2 | 5.9 | 6.1 | 3.7 | 5.2 | 5.3 | 7.4 | 6.6 | 0.0 | 2.9 | 6.8 | 7.0 |
| Prop In Lane | 1.00 | | 0.53 | 1.00 | | 0.24 | 1.00 | | 0.00 | 1.00 | | 0.31 |
| Lane Grp Cap(c), veh/h | 503 | 675 | 647 | 516 | 742 | 747 | 361 | 774 | | 321 | 277 | 276 |
| V/C Ratio(X) | 0.08 | 0.26 | 0.27 | 0.25 | 0.22 | 0.23 | 0.51 | 0.39 | | 0.21 | 0.52 | 0.53 |
| Avail Cap(c_a), veh/h | 1045 | 675 | 647 | 982 | 742 | 747 | 752 | 1350 | | 822 | 675 | 672 |
| 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 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 13.9 | 16.4 | 16.5 | 12.3 | 13.9 | 13.9 | 23.5 | 27.2 | 0.0 | 27.1 | 32.1 | 32.2 |
| Incr Delay (d2), s/veh | 0.1 | 0.9 | 1.0 | 0.2 | 0.1 | 0.2 | 1.1 | 0.3 | 0.0 | 0.3 | 1.5 | 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(50%),veh/ln | 0.4 | 2.3 | 2.3 | 1.3 | 1.9 | 1.9 | 2.9 | 2.5 | 0.0 | 1.1 | 2.8 | 2.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 13.9 | 17.3 | 17.5 | 12.6 | 14.1 | 14.1 | 24.6 | 27.6 | 0.0 | 27.5 | 33.6 | 33.8 |
| LnGrp LOS | B | B | B | B | B | B | C | C | | C | C | C |
| Approach Vol, veh/h | | 383 | | | 460 | | | 485 | A | | 360 | |
| Approach Delay, s/veh | | 17.0 | | | 13.7 | | | 26.4 | | | 32.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.9 | 43.8 | 9.1 | 25.1 | 10.7 | 40.0 | 14.8 | 19.4 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 30.0 | 35.0 | 30.0 | 35.0 | 30.0 | 35.0 | 30.0 | 35.0 |
| Max Q Clear Time (g_c+I1), s | 13.2 | 7.3 | 4.9 | 8.6 | 5.7 | 8.1 | 9.4 | 9.0 |
| Green Ext Time (p_c), s | 0.1 | 2.1 | 0.1 | 2.0 | 0.3 | 2.2 | 0.5 | 1.7 |

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

**Notes**

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 19 | 144 | 241 | 162 | 181 | 94 | 100 | 376 | 65 | 45 | 430 | 18 |
| Future Volume (veh/h) | 19 | 144 | 241 | 162 | 181 | 94 | 100 | 376 | 65 | 45 | 430 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 20 | 148 | 0 | 167 | 187 | 97 | 103 | 388 | 0 | 46 | 443 | 19 |
| 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 | 2 | 2 | 2 |
| Cap, veh/h | 26 | 425 | | 227 | 536 | 266 | 137 | 1036 | | 56 | 853 | 37 |
| Arrive On Green | 0.01 | 0.12 | 0.00 | 0.13 | 0.23 | 0.23 | 0.08 | 0.29 | 0.00 | 0.03 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 3647 | 0 | 1795 | 2318 | 1151 | 1781 | 3647 | 0 | 1781 | 3471 | 149 |
| Grp Volume(v), veh/h | 20 | 148 | 0 | 167 | 143 | 141 | 103 | 388 | 0 | 46 | 226 | 236 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 0 | 1795 | 1791 | 1678 | 1781 | 1777 | 0 | 1781 | 1777 | 1843 |
| Q Serve(g_s), s | 0.5 | 1.6 | 0.0 | 3.7 | 2.8 | 3.0 | 2.4 | 3.6 | 0.0 | 1.1 | 4.6 | 4.6 |
| Cycle Q Clear(g_c), s | 0.5 | 1.6 | 0.0 | 3.7 | 2.8 | 3.0 | 2.4 | 3.6 | 0.0 | 1.1 | 4.6 | 4.6 |
| Prop In Lane | 1.00 | | 0.00 | 1.00 | | 0.69 | 1.00 | | 0.00 | 1.00 | | 0.08 |
| Lane Grp Cap(c), veh/h | 26 | 425 | | 227 | 414 | 388 | 137 | 1036 | | 56 | 437 | 453 |
| V/C Ratio(X) | 0.75 | 0.35 | | 0.74 | 0.34 | 0.36 | 0.75 | 0.37 | | 0.82 | 0.52 | 0.52 |
| Avail Cap(c_a), veh/h | 1279 | 2977 | | 1289 | 1500 | 1406 | 1279 | 2977 | | 1279 | 1489 | 1544 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 20.5 | 16.9 | 0.0 | 17.6 | 13.4 | 13.5 | 18.9 | 11.8 | 0.0 | 20.1 | 13.6 | 13.6 |
| Incr Delay (d2), s/veh | 34.4 | 0.6 | 0.0 | 4.6 | 0.6 | 0.7 | 7.9 | 0.3 | 0.0 | 25.0 | 1.1 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.6 | 0.0 | 1.6 | 1.0 | 1.0 | 1.2 | 1.2 | 0.0 | 0.8 | 1.7 | 1.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 54.9 | 17.5 | 0.0 | 22.1 | 14.0 | 14.2 | 26.8 | 12.0 | 0.0 | 45.1 | 14.8 | 14.7 |
| LnGrp LOS | D | B | | C | B | B | C | B | | D | B | B |
| Approach Vol, veh/h | | 168 | A | | 451 | | | 491 | A | | 508 | |
| Approach Delay, s/veh | | 21.9 | | | 17.1 | | | 15.1 | | | 17.5 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.7 | 14.8 | 5.1 | 14.2 | 5.8 | 16.7 | 9.8 | 9.5 |
| 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 | 30.0 | 35.0 | 30.0 | 35.0 | 30.0 | 35.0 | 30.0 | 35.0 |
| Max Q Clear Time (g_c+I1), s | 11.4 | 6.6 | 2.5 | 5.0 | 3.1 | 5.6 | 5.7 | 3.6 |
| Green Ext Time (p_c), s | 0.3 | 3.5 | 0.0 | 2.0 | 0.1 | 3.2 | 0.4 | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 17.1 |
| HCM 6th LOS | B |

Notes

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 3 | 10 | 13 | 477 | 4 | 35 | 0 | 449 | 215 | 13 | 845 | 3 |
| Future Volume (veh/h) | 3 | 10 | 13 | 477 | 4 | 35 | 0 | 449 | 215 | 13 | 845 | 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 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 0 | 1841 | 1841 | 1885 | 1885 | 1885 |
| Adj Flow Rate, veh/h | 3 | 10 | 13 | 492 | 4 | 36 | 0 | 463 | 222 | 13 | 871 | 3 |
| 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, % | 4 | 4 | 4 | 3 | 3 | 3 | 0 | 4 | 4 | 1 | 1 | 1 |
| Cap, veh/h | 15 | 49 | 55 | 574 | 52 | 467 | 0 | 664 | 316 | 18 | 1406 | 5 |
| Arrive On Green | 0.04 | 0.04 | 0.04 | 0.32 | 0.32 | 0.32 | 0.00 | 0.29 | 0.29 | 0.01 | 0.38 | 0.38 |
| Sat Flow, veh/h | 420 | 1400 | 1560 | 1767 | 160 | 1437 | 0 | 2390 | 1094 | 1795 | 3661 | 13 |
| Grp Volume(v), veh/h | 13 | 0 | 13 | 492 | 0 | 40 | 0 | 351 | 334 | 13 | 426 | 448 |
| Grp Sat Flow(s),veh/h/ln | 1820 | 0 | 1560 | 1767 | 0 | 1597 | 0 | 1749 | 1644 | 1795 | 1791 | 1883 |
| Q Serve(g_s), s | 0.4 | 0.0 | 0.5 | 15.3 | 0.0 | 1.0 | 0.0 | 10.5 | 10.6 | 0.4 | 11.3 | 11.3 |
| Cycle Q Clear(g_c), s | 0.4 | 0.0 | 0.5 | 15.3 | 0.0 | 1.0 | 0.0 | 10.5 | 10.6 | 0.4 | 11.3 | 11.3 |
| Prop In Lane | 0.23 | | 1.00 | 1.00 | | 0.90 | 0.00 | | 0.67 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 64 | 0 | 55 | 574 | 0 | 518 | 0 | 505 | 475 | 18 | 688 | 723 |
| V/C Ratio(X) | 0.20 | 0.00 | 0.24 | 0.86 | 0.00 | 0.08 | 0.00 | 0.70 | 0.70 | 0.74 | 0.62 | 0.62 |
| Avail Cap(c_a), veh/h | 311 | 0 | 266 | 1206 | 0 | 1090 | 0 | 1194 | 1122 | 460 | 1834 | 1928 |
| 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 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.5 | 0.0 | 27.5 | 18.5 | 0.0 | 13.7 | 0.0 | 18.5 | 18.6 | 28.9 | 14.6 | 14.6 |
| Incr Delay (d2), s/veh | 0.6 | 0.0 | 0.8 | 3.9 | 0.0 | 0.1 | 0.0 | 1.7 | 1.9 | 20.1 | 0.9 | 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(50%),veh/ln | 0.2 | 0.0 | 0.2 | 5.8 | 0.0 | 0.3 | 0.0 | 3.9 | 3.7 | 0.3 | 4.2 | 4.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 28.0 | 0.0 | 28.3 | 22.4 | 0.0 | 13.8 | 0.0 | 20.3 | 20.5 | 49.0 | 15.5 | 15.5 |
| LnGrp LOS | C | A | C | C | A | B | A | C | C | D | B | B |
| Approach Vol, veh/h | | 26 | | | 532 | | | 685 | | | 887 | |
| Approach Delay, s/veh | | 28.2 | | | 21.7 | | | 20.4 | | | 16.0 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.6 | 21.9 | | 24.0 | | 27.5 | | 7.1 | | | | |
| Change Period (Y+Rc), s | 5.0 | 5.0 | | 5.0 | | 5.0 | | 5.0 | | | | |
| Max Green Setting (Gmax), s | 15.0 | 40.0 | | 40.0 | | 60.0 | | 10.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 12.4 | 12.6 | | 17.3 | | 13.3 | | 2.5 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.3 | | 1.8 | | 6.7 | | 0.0 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 19.0 |
| HCM 6th LOS | B |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 180 | 66 | 116 | 6 | 94 | 55 | 109 | 298 | 4 | 37 | 300 | 300 |
| Future Volume (veh/h) | 180 | 66 | 116 | 6 | 94 | 55 | 109 | 298 | 4 | 37 | 300 | 300 |
| 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 | 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 | 1709 | 1709 | 1709 | 1668 | 1668 | 1668 | 1736 | 1736 | 1736 | 1723 | 1723 | 1723 |
| Adj Flow Rate, veh/h | 205 | 75 | 132 | 7 | 107 | 62 | 124 | 339 | 5 | 42 | 341 | 341 |
| 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, % | 3 | 3 | 3 | 6 | 6 | 6 | 1 | 1 | 1 | 2 | 2 | 2 |
| Cap, veh/h | 498 | 641 | 539 | 67 | 156 | 87 | 334 | 593 | 9 | 341 | 512 | 434 |
| Arrive On Green | 0.13 | 0.37 | 0.37 | 0.16 | 0.16 | 0.16 | 0.08 | 0.35 | 0.35 | 0.03 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1628 | 1709 | 1437 | 25 | 977 | 545 | 1654 | 1707 | 25 | 1641 | 1723 | 1460 |
| Grp Volume(v), veh/h | 205 | 75 | 132 | 176 | 0 | 0 | 124 | 0 | 344 | 42 | 341 | 341 |
| Grp Sat Flow(s),veh/h/ln | 1628 | 1709 | 1437 | 1547 | 0 | 0 | 1654 | 0 | 1732 | 1641 | 1723 | 1460 |
| Q Serve(g_s), s | 5.8 | 1.7 | 3.8 | 0.8 | 0.0 | 0.0 | 3.0 | 0.0 | 9.6 | 1.1 | 10.3 | 12.8 |
| Cycle Q Clear(g_c), s | 5.8 | 1.7 | 3.8 | 6.4 | 0.0 | 0.0 | 3.0 | 0.0 | 9.6 | 1.1 | 10.3 | 12.8 |
| Prop In Lane | 1.00 | | 1.00 | 0.04 | | 0.35 | 1.00 | | 0.01 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 498 | 641 | 539 | 309 | 0 | 0 | 334 | 0 | 602 | 341 | 512 | 434 |
| V/C Ratio(X) | 0.41 | 0.12 | 0.25 | 0.57 | 0.00 | 0.00 | 0.37 | 0.00 | 0.57 | 0.12 | 0.67 | 0.79 |
| Avail Cap(c_a), veh/h | 693 | 1003 | 843 | 450 | 0 | 0 | 624 | 0 | 871 | 573 | 722 | 612 |
| 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 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.6 | 12.2 | 12.8 | 23.8 | 0.0 | 0.0 | 13.7 | 0.0 | 15.8 | 14.4 | 18.4 | 19.2 |
| Incr Delay (d2), s/veh | 0.5 | 0.1 | 0.3 | 2.0 | 0.0 | 0.0 | 0.7 | 0.0 | 1.0 | 0.2 | 1.8 | 5.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.0 | 0.6 | 1.1 | 2.4 | 0.0 | 0.0 | 1.1 | 0.0 | 3.6 | 0.4 | 4.0 | 4.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 16.1 | 12.3 | 13.1 | 25.7 | 0.0 | 0.0 | 14.4 | 0.0 | 16.9 | 14.6 | 20.2 | 24.2 |
| LnGrp LOS | B | B | B | C | A | A | B | A | B | B | C | C |
| Approach Vol, veh/h | | 412 | | | 176 | | | 468 | | | 724 | |
| Approach Delay, s/veh | | 14.5 | | | 25.7 | | | 16.2 | | | 21.7 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.9 | 14.5 | 6.5 | 25.7 | | 27.4 | 9.6 | 22.7 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 15.0 | 15.0 | 10.0 | 30.0 | | 35.0 | 15.0 | 25.0 |
| Max Q Clear Time (g_c+I1), s | 7.8 | 8.4 | 3.1 | 11.6 | | 5.8 | 5.0 | 14.8 |
| Green Ext Time (p_c), s | 0.3 | 0.5 | 0.0 | 2.3 | | 1.1 | 0.2 | 3.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 19.0 |
| HCM 6th LOS | B |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 41 | 71 | 35 | 12 | 75 | 6 | 37 | 147 | 9 | 5 | 225 | 72 |
| Future Volume (veh/h) | 41 | 71 | 35 | 12 | 75 | 6 | 37 | 147 | 9 | 5 | 225 | 72 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.98 | | 0.99 | 0.99 | | 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 | 1695 | 1695 | 1695 | 1668 | 1668 | 1668 | 1682 | 1682 | 1682 | 1736 | 1736 | 1736 |
| Adj Flow Rate, veh/h | 45 | 77 | 38 | 13 | 82 | 7 | 40 | 160 | 10 | 5 | 245 | 78 |
| 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 | 6 | 6 | 6 | 5 | 5 | 5 | 1 | 1 | 1 |
| Cap, veh/h | 363 | 499 | 245 | 207 | 868 | 72 | 491 | 537 | 34 | 538 | 848 | 263 |
| Arrive On Green | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 |
| Sat Flow, veh/h | 562 | 1522 | 748 | 185 | 2648 | 219 | 946 | 1565 | 98 | 1123 | 2473 | 768 |
| Grp Volume(v), veh/h | 89 | 0 | 71 | 55 | 0 | 47 | 40 | 0 | 170 | 5 | 161 | 162 |
| Grp Sat Flow(s),veh/h/ln | 1437 | 0 | 1395 | 1579 | 0 | 1472 | 946 | 0 | 1663 | 1123 | 1650 | 1592 |
| Q Serve(g_s), s | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.7 | 1.0 | 0.0 | 2.3 | 0.1 | 2.2 | 2.3 |
| Cycle Q Clear(g_c), s | 1.1 | 0.0 | 1.1 | 0.7 | 0.0 | 0.7 | 3.2 | 0.0 | 2.3 | 2.4 | 2.2 | 2.3 |
| Prop In Lane | 0.50 | | 0.54 | 0.24 | | 0.15 | 1.00 | | 0.06 | 1.00 | | 0.48 |
| Lane Grp Cap(c), veh/h | 649 | 0 | 457 | 664 | 0 | 482 | 491 | 0 | 570 | 538 | 565 | 546 |
| V/C Ratio(X) | 0.14 | 0.00 | 0.16 | 0.08 | 0.00 | 0.10 | 0.08 | 0.00 | 0.30 | 0.01 | 0.29 | 0.30 |
| Avail Cap(c_a), veh/h | 969 | 0 | 782 | 1012 | 0 | 825 | 666 | 0 | 877 | 745 | 870 | 839 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 7.2 | 0.0 | 7.2 | 7.1 | 0.0 | 7.1 | 8.5 | 0.0 | 7.3 | 8.2 | 7.3 | 7.3 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.1 | 0.3 | 0.0 | 1.1 | 0.0 | 1.0 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.0 | 0.2 | 0.2 | 0.0 | 0.2 | 0.2 | 0.0 | 0.7 | 0.0 | 0.6 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 7.4 | 0.0 | 7.4 | 7.2 | 0.0 | 7.2 | 8.7 | 0.0 | 8.4 | 8.2 | 8.3 | 8.4 |
| LnGrp LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 160 | | | 102 | | | 210 | | | 328 | |
| Approach Delay, s/veh | | 7.4 | | | 7.2 | | | 8.4 | | | 8.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer - Assigned Phs | 2 | 4 | 6 | 8 |
|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 15.4 | 14.9 | 15.4 | 14.9 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 16.0 | 17.0 | 16.0 | 17.0 |
| Max Q Clear Time (g_c+I1), s | 5.2 | 3.1 | 4.4 | 2.7 |
| Green Ext Time (p_c), s | 1.7 | 0.9 | 3.0 | 0.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 8.0 |
| HCM 6th LOS | A |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 69 | 259 | 16 | 25 | 299 | 46 | 12 | 68 | 28 | 65 | 67 | 63 |
| Future Volume (veh/h) | 69 | 259 | 16 | 25 | 299 | 46 | 12 | 68 | 28 | 65 | 67 | 63 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.99 | | 0.96 | 0.99 | | 0.98 | 0.98 | | 0.96 | 0.97 | | 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 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 | 1736 |
| Adj Flow Rate, veh/h | 74 | 278 | 17 | 27 | 322 | 49 | 13 | 73 | 30 | 70 | 72 | 68 |
| 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 412 | 581 | 35 | 449 | 458 | 70 | 103 | 318 | 118 | 196 | 183 | 133 |
| Arrive On Green | 0.09 | 0.36 | 0.36 | 0.04 | 0.31 | 0.31 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1654 | 1615 | 99 | 1654 | 1468 | 223 | 69 | 1122 | 416 | 337 | 646 | 471 |
| Grp Volume(v), veh/h | 74 | 0 | 295 | 27 | 0 | 371 | 116 | 0 | 0 | 210 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1654 | 0 | 1714 | 1654 | 0 | 1691 | 1607 | 0 | 0 | 1454 | 0 | 0 |
| Q Serve(g_s), s | 1.3 | 0.0 | 6.4 | 0.5 | 0.0 | 9.3 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.3 | 0.0 | 6.4 | 0.5 | 0.0 | 9.3 | 2.6 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 0.06 | 1.00 | | 0.13 | 0.11 | | 0.26 | 0.33 | | 0.32 |
| Lane Grp Cap(c), veh/h | 412 | 0 | 616 | 449 | 0 | 527 | 538 | 0 | 0 | 512 | 0 | 0 |
| V/C Ratio(X) | 0.18 | 0.00 | 0.48 | 0.06 | 0.00 | 0.70 | 0.22 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 745 | 0 | 1469 | 859 | 0 | 1449 | 1073 | 0 | 0 | 992 | 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 | 9.9 | 0.0 | 11.9 | 10.3 | 0.0 | 14.5 | 13.2 | 0.0 | 0.0 | 14.2 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.6 | 0.1 | 0.0 | 1.7 | 0.2 | 0.0 | 0.0 | 0.5 | 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(50%),veh/ln | 0.4 | 0.0 | 2.2 | 0.2 | 0.0 | 3.3 | 0.9 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 10.1 | 0.0 | 12.4 | 10.3 | 0.0 | 16.2 | 13.4 | 0.0 | 0.0 | 14.7 | 0.0 | 0.0 |
| LnGrp LOS | B | A | B | B | A | B | B | A | A | B | A | A |
| Approach Vol, veh/h | | 369 | | | 398 | | | 116 | | | 210 | |
| Approach Delay, s/veh | | 12.0 | | | 15.8 | | | 13.4 | | | 14.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.4 | 19.9 | | 18.5 | 7.1 | 22.2 | | 18.5 | | | | |
| Change Period (Y+Rc), s | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | | 5.0 | | | | |
| Max Green Setting (Gmax), s | 14.0 | 41.0 | | 30.0 | 14.0 | 41.0 | | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 13.3 | 11.3 | | 4.6 | 2.5 | 8.4 | | 7.4 | | | | |
| Green Ext Time (p_c), s | 0.1 | 2.6 | | 0.6 | 0.0 | 2.0 | | 1.3 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 14.1 |
| HCM 6th LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 32 | 166 | 5 | 5 | 375 | 29 | 1 | 12 | 5 | 11 | 16 | 58 |
| Future Volume (veh/h) | 32 | 166 | 5 | 5 | 375 | 29 | 1 | 12 | 5 | 11 | 16 | 58 |
| 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 | 1736 | 1736 | 1736 | 1723 | 1723 | 1723 | 1586 | 1586 | 1586 | 1695 | 1695 | 1695 |
| Adj Flow Rate, veh/h | 36 | 187 | 6 | 6 | 421 | 33 | 1 | 13 | 6 | 12 | 18 | 65 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 2 | 2 | 2 | 12 | 12 | 12 | 4 | 4 | 4 |
| Cap, veh/h | 567 | 971 | 31 | 685 | 916 | 72 | 222 | 194 | 87 | 254 | 65 | 196 |
| Arrive On Green | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| Sat Flow, veh/h | 870 | 3263 | 104 | 1096 | 3076 | 240 | 45 | 996 | 446 | 131 | 333 | 1006 |
| Grp Volume(v), veh/h | 36 | 94 | 99 | 6 | 223 | 231 | 20 | 0 | 0 | 95 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 870 | 1650 | 1718 | 1096 | 1637 | 1679 | 1487 | 0 | 0 | 1470 | 0 | 0 |
| Q Serve(g_s), s | 0.6 | 0.8 | 0.8 | 0.1 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 2.6 | 0.8 | 0.8 | 0.8 | 2.0 | 2.0 | 0.2 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 0.06 | 1.00 | | 0.14 | 0.05 | | 0.30 | 0.13 | | 0.68 |
| Lane Grp Cap(c), veh/h | 567 | 491 | 511 | 685 | 487 | 500 | 503 | 0 | 0 | 515 | 0 | 0 |
| V/C Ratio(X) | 0.06 | 0.19 | 0.19 | 0.01 | 0.46 | 0.46 | 0.04 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 1044 | 1394 | 1452 | 1285 | 1383 | 1420 | 1878 | 0 | 0 | 1870 | 0 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 6.1 | 4.6 | 4.6 | 5.0 | 5.1 | 5.1 | 5.8 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.1 | 0.0 | 0.3 | 0.2 | 0.0 | 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(50%),veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 6.2 | 4.7 | 4.7 | 5.0 | 5.3 | 5.3 | 5.9 | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 |
| LnGrp LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 229 | | | 460 | | | 20 | | | 95 | |
| Approach Delay, s/veh | | 4.9 | | | 5.3 | | | 5.9 | | | 6.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer - Assigned Phs | 2 | 4 | 6 | 8 |
|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.8 | 8.0 | 9.8 | 8.0 |
| Change Period (Y+Rc), s | 4.5 | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | 15.0 | 20.0 | 15.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 2.2 | 4.6 | 3.0 |
| Green Ext Time (p_c), s | 1.3 | 0.0 | 0.5 | 0.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 5.3 |
| HCM 6th LOS | A |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 211 | 1 | 4 | 497 | 5 | 8 |
| Future Vol, veh/h | 211 | 1 | 4 | 497 | 5 | 8 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | 120 | 215 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 8 | 8 | 3 | 3 | 0 | 0 |
| Mvmt Flow | 232 | 1 | 4 | 546 | 5 | 9 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 233 | 0 | 786 | 232 |
| Stage 1 | - | - | - | - | 232 | - |
| Stage 2 | - | - | - | - | 554 | - |
| Critical Hdwy | - | - | 4.13 | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 2.227 | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | - | - | 1329 | - | 364 | 812 |
| Stage 1 | - | - | - | - | 811 | - |
| Stage 2 | - | - | - | - | 580 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1329 | - | 363 | 812 |
| Mov Cap-2 Maneuver | - | - | - | - | 363 | - |
| Stage 1 | - | - | - | - | 811 | - |
| Stage 2 | - | - | - | - | 578 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | 8.9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 944 | - | - | 1329 | - |
| HCM Lane V/C Ratio | 0.015 | - | - | 0.003 | - |
| HCM Control Delay (s) | 8.9 | - | - | 7.7 | - |
| HCM Lane LOS | A | - | - | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 86 | 288 | 49 | 27 | 254 | 44 | 65 | 175 | 14 | 37 | 203 | 161 |
| Future Volume (veh/h) | 86 | 288 | 49 | 27 | 254 | 44 | 65 | 175 | 14 | 37 | 203 | 161 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1693 | 1693 | 1693 | 1752 | 1752 | 1752 |
| Adj Flow Rate, veh/h | 88 | 294 | 50 | 28 | 259 | 45 | 66 | 179 | 14 | 38 | 207 | 164 |
| 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 | 3 | 3 | 3 | 14 | 14 | 14 | 10 | 10 | 10 |
| Cap, veh/h | 330 | 724 | 122 | 350 | 382 | 323 | 311 | 669 | 52 | 391 | 372 | 280 |
| Arrive On Green | 0.06 | 0.24 | 0.24 | 0.03 | 0.21 | 0.21 | 0.05 | 0.22 | 0.22 | 0.03 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1781 | 3043 | 511 | 1767 | 1856 | 1570 | 1612 | 3023 | 234 | 1668 | 1807 | 1360 |
| Grp Volume(v), veh/h | 88 | 170 | 174 | 28 | 259 | 45 | 66 | 94 | 99 | 38 | 190 | 181 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1778 | 1767 | 1856 | 1570 | 1612 | 1608 | 1650 | 1668 | 1664 | 1503 |
| Q Serve(g_s), s | 1.9 | 4.0 | 4.1 | 0.6 | 6.4 | 1.2 | 1.6 | 2.4 | 2.5 | 0.9 | 5.1 | 5.4 |
| Cycle Q Clear(g_c), s | 1.9 | 4.0 | 4.1 | 0.6 | 6.4 | 1.2 | 1.6 | 2.4 | 2.5 | 0.9 | 5.1 | 5.4 |
| Prop In Lane | 1.00 | | 0.29 | 1.00 | | 1.00 | 1.00 | | 0.14 | 1.00 | | 0.90 |
| Lane Grp Cap(c), veh/h | 330 | 423 | 423 | 350 | 382 | 323 | 311 | 356 | 365 | 391 | 343 | 310 |
| V/C Ratio(X) | 0.27 | 0.40 | 0.41 | 0.08 | 0.68 | 0.14 | 0.21 | 0.27 | 0.27 | 0.10 | 0.55 | 0.59 |
| Avail Cap(c_a), veh/h | 944 | 1428 | 1429 | 1014 | 1492 | 1262 | 881 | 969 | 995 | 1007 | 1003 | 906 |
| 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 | 14.6 | 16.0 | 16.0 | 15.0 | 18.2 | 16.1 | 14.8 | 16.0 | 16.0 | 14.8 | 17.7 | 17.8 |
| Incr Delay (d2), s/veh | 0.4 | 0.2 | 0.2 | 0.1 | 0.8 | 0.1 | 0.3 | 0.1 | 0.1 | 0.1 | 0.5 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 1.5 | 1.5 | 0.2 | 2.6 | 0.3 | 0.5 | 0.7 | 0.8 | 0.3 | 1.6 | 1.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 15.1 | 16.2 | 16.3 | 15.1 | 19.0 | 16.2 | 15.1 | 16.2 | 16.2 | 14.9 | 18.2 | 18.5 |
| LnGrp LOS | B | B | B | B | B | B | B | B | B | B | B | B |
| Approach Vol, veh/h | | 432 | | | 332 | | | 259 | | | 409 | |
| Approach Delay, s/veh | | 16.0 | | | 18.3 | | | 15.9 | | | 18.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.3 | 17.8 | 8.4 | 16.3 | 8.9 | 16.3 | 7.6 | 17.0 |
| Change Period (Y+Rc), s | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Max Green Setting (Gmax), s | 20.0 | 40.0 | 20.0 | 30.0 | 20.0 | 40.0 | 20.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 2.6 | 6.1 | 3.6 | 7.4 | 3.9 | 8.4 | 2.9 | 4.5 |
| Green Ext Time (p_c), s | 0.0 | 1.5 | 0.1 | 1.2 | 0.2 | 1.1 | 0.0 | 0.6 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 17.1 |
| HCM 6th LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 37 | 126 | 13 | 137 | 195 | 49 | 5 | 95 | 114 | 36 | 183 | 46 |
| Future Volume (veh/h) | 37 | 126 | 13 | 137 | 195 | 49 | 5 | 95 | 114 | 36 | 183 | 46 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1826 | 1826 | 1826 | 1618 | 1618 | 1618 | 1752 | 1752 | 1752 |
| Adj Flow Rate, veh/h | 39 | 133 | 14 | 144 | 205 | 52 | 5 | 100 | 0 | 38 | 193 | 48 |
| 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 | 5 | 5 | 5 | 19 | 19 | 19 | 10 | 10 | 10 |
| Cap, veh/h | 548 | 822 | 85 | 631 | 861 | 213 | 0 | 791 | | 0 | 683 | 166 |
| Arrive On Green | 0.04 | 0.26 | 0.26 | 0.10 | 0.31 | 0.31 | 0.00 | 0.26 | 0.00 | 0.00 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1767 | 3223 | 335 | 1739 | 2755 | 683 | 0 | 3156 | 0 | 0 | 2655 | 645 |
| Grp Volume(v), veh/h | 39 | 72 | 75 | 144 | 127 | 130 | 0 | 100 | 0 | 0 | 119 | 122 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1795 | 1739 | 1735 | 1703 | 0 | 1537 | 0 | 0 | 1664 | 1636 |
| Q Serve(g_s), s | 0.6 | 1.2 | 1.3 | 2.3 | 2.1 | 2.2 | 0.0 | 1.0 | 0.0 | 0.0 | 2.2 | 2.3 |
| Cycle Q Clear(g_c), s | 0.6 | 1.2 | 1.3 | 2.3 | 2.1 | 2.2 | 0.0 | 1.0 | 0.0 | 0.0 | 2.2 | 2.3 |
| Prop In Lane | 1.00 | | 0.19 | 1.00 | | 0.40 | 0.00 | | 0.00 | 0.00 | | 0.39 |
| Lane Grp Cap(c), veh/h | 548 | 450 | 458 | 631 | 542 | 532 | 0 | 791 | | 0 | 428 | 421 |
| V/C Ratio(X) | 0.07 | 0.16 | 0.16 | 0.23 | 0.23 | 0.24 | 0.00 | 0.13 | | 0.00 | 0.28 | 0.29 |
| Avail Cap(c_a), veh/h | 1152 | 1814 | 1848 | 1126 | 1786 | 1753 | 0 | 3561 | | 0 | 1713 | 1684 |
| 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 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 9.8 | 11.2 | 11.2 | 8.8 | 9.9 | 9.9 | 0.0 | 11.1 | 0.0 | 0.0 | 11.5 | 11.6 |
| Incr Delay (d2), s/veh | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.5 | 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(50%),veh/ln | 0.2 | 0.4 | 0.4 | 0.6 | 0.6 | 0.7 | 0.0 | 0.2 | 0.0 | 0.0 | 0.6 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 9.8 | 11.5 | 11.5 | 9.0 | 10.2 | 10.3 | 0.0 | 11.2 | 0.0 | 0.0 | 12.0 | 12.1 |
| LnGrp LOS | A | B | B | A | B | B | A | B | | A | B | B |
| Approach Vol, veh/h | | 186 | | | 401 | | | 100 | A | | 241 | |
| Approach Delay, s/veh | | 11.1 | | | 9.8 | | | 11.2 | | | 12.1 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.9 | 14.9 | 0.0 | 15.0 | 6.7 | 17.1 | 0.0 | 15.0 |
| 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 | 40.0 | 25.0 | 40.0 | 15.0 | 40.0 | 20.0 | 45.0 |
| Max Q Clear Time (g_c+I1), s | 4.3 | 3.3 | 0.0 | 4.3 | 2.6 | 4.2 | 0.0 | 3.0 |
| Green Ext Time (p_c), s | 0.3 | 1.2 | 0.0 | 1.9 | 0.0 | 2.2 | 0.0 | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 10.8 |
| HCM 6th LOS | B |

Notes

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 133 | 76 | 0 | 1 | 190 | 35 | 2 | 11 | 0 | 21 | 0 | 280 |
| Future Vol, veh/h | 133 | 76 | 0 | 1 | 190 | 35 | 2 | 11 | 0 | 21 | 0 | 280 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | Yield | - | - | None | - | - | Yield |
| Storage Length | 300 | - | - | - | - | 0 | - | - | 100 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| Heavy Vehicles, % | 8 | 8 | 8 | 8 | 8 | 8 | 0 | 0 | 0 | 5 | 5 | 5 |
| Mvmt Flow | 158 | 90 | 0 | 1 | 226 | 42 | 2 | 13 | 0 | 25 | 0 | 333 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 226 | 0 | 0 | 90 | 0 | 0 | 634 | 634 | 90 | 641 | 634 | 226 |
| Stage 1 | - | - | - | - | - | - | 406 | 406 | - | 228 | 228 | - |
| Stage 2 | - | - | - | - | - | - | 228 | 228 | - | 413 | 406 | - |
| Critical Hdwy | 4.18 | - | - | 4.18 | - | - | 7.1 | 6.5 | 6.2 | 7.15 | 6.55 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.15 | 5.55 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.15 | 5.55 | - |
| Follow-up Hdwy | 2.272 | - | - | 2.272 | - | - | 3.5 | 4 | 3.3 | 3.545 | 4.045 | 3.345 |
| Pot Cap-1 Maneuver | 1308 | - | - | 1468 | - | - | 395 | 399 | 973 | 383 | 393 | 806 |
| Stage 1 | - | - | - | - | - | - | 626 | 601 | - | 768 | 710 | - |
| Stage 2 | - | - | - | - | - | - | 779 | 719 | - | 610 | 593 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1308 | - | - | 1468 | - | - | 210 | 350 | 973 | 337 | 345 | 806 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 210 | 350 | - | 337 | 345 | - |
| Stage 1 | - | - | - | - | - | - | 550 | 528 | - | 675 | 709 | - |
| Stage 2 | - | - | - | - | - | - | 456 | 718 | - | 523 | 521 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 5.2 | 0 | 16.9 | 12.9 |
| HCM LOS | | | C | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 317 | - | 1308 | - | - | 1468 | - | - | 337 | 806 |
| HCM Lane V/C Ratio | 0.049 | - | 0.121 | - | - | 0.001 | - | - | 0.074 | 0.414 |
| HCM Control Delay (s) | 16.9 | 0 | 8.1 | - | - | 7.5 | 0 | - | 16.5 | 12.6 |
| HCM Lane LOS | C | A | A | - | - | A | A | - | C | B |
| HCM 95th %tile Q(veh) | 0.2 | - | 0.4 | - | - | 0 | - | - | 0.2 | 2 |

| 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 | 114 | 9 | 52 | 12 | 19 | 33 | 43 | 62 | 8 | 15 | 137 | 378 |
| Future Vol, veh/h | 114 | 9 | 52 | 12 | 19 | 33 | 43 | 62 | 8 | 15 | 137 | 378 |
| Conflicting Peds, #/hr | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | None | - | - | Yield |
| Storage Length | 240 | - | - | - | - | 120 | 275 | - | - | 325 | - | 325 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| Heavy Vehicles, % | 5 | 5 | 5 | 0 | 0 | 0 | 12 | 12 | 12 | 2 | 2 | 2 |
| Mvmt Flow | 168 | 13 | 76 | 18 | 28 | 49 | 63 | 91 | 12 | 22 | 201 | 556 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 482 | 474 | 208 | 482 | 468 | 97 | 201 | 0 | 0 | 103 | 0 | 0 |
| Stage 1 | 245 | 245 | - | 223 | 223 | - | - | - | - | - | - | - |
| Stage 2 | 237 | 229 | - | 259 | 245 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.15 | 6.55 | 6.25 | 7.1 | 6.5 | 6.2 | 4.22 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.15 | 5.55 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.15 | 5.55 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.545 | 4.045 | 3.345 | 3.5 | 4 | 3.3 | 2.308 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 490 | 485 | 825 | 498 | 496 | 965 | 1313 | - | - | 1489 | - | - |
| Stage 1 | 752 | 698 | - | 784 | 723 | - | - | - | - | - | - | - |
| Stage 2 | 760 | 709 | - | 750 | 707 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 423 | 455 | 820 | 418 | 465 | 965 | 1313 | - | - | 1489 | - | - |
| Mov Cap-2 Maneuver | 423 | 455 | - | 418 | 465 | - | - | - | - | - | - | - |
| Stage 1 | 716 | 688 | - | 746 | 688 | - | - | - | - | - | - | - |
| Stage 2 | 659 | 675 | - | 653 | 696 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 16.6 | 11.4 | 3 | 0.2 |
| HCM LOS | C | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1313 | - | - | 423 | 605 | 446 | 965 | 1489 | - | - |
| HCM Lane V/C Ratio | 0.048 | - | - | 0.396 | 0.148 | 0.102 | 0.05 | 0.015 | - | - |
| HCM Control Delay (s) | 7.9 | - | - | 19 | 12 | 14 | 8.9 | 7.5 | - | - |
| HCM Lane LOS | A | - | - | C | B | B | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 1.9 | 0.5 | 0.3 | 0.2 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 25 | 167 | 0 | 0 | 314 | 57 | 0 | 0 | 0 | 96 | 0 | 86 |
| Future Vol, veh/h | 25 | 167 | 0 | 0 | 314 | 57 | 0 | 0 | 0 | 96 | 0 | 86 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 200 | - | - | 200 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 6 | 6 | 6 | 4 | 4 | 4 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 30 | 201 | 0 | 0 | 378 | 69 | 0 | 0 | 0 | 116 | 0 | 104 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 0 | 0 | 201 | 0 | 0 | 450 | 708 | 101 | 574 | 674 | 224 |
| Stage 1 | - | - | - | - | - | - | 261 | 261 | - | 413 | 413 | - |
| Stage 2 | - | - | - | - | - | - | 189 | 447 | - | 161 | 261 | - |
| Critical Hdwy | 4.22 | - | - | 4.18 | - | - | 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 | 2.26 | - | - | 2.24 | - | - | 3.5 | 4 | 3.3 | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1082 | - | - | 1354 | - | - | 497 | 362 | 941 | 402 | 375 | 779 |
| Stage 1 | - | - | - | - | - | - | 727 | 696 | - | 587 | 592 | - |
| Stage 2 | - | - | - | - | - | - | 800 | 577 | - | 825 | 691 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1082 | - | - | 1354 | - | - | 422 | 352 | 941 | 394 | 365 | 779 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 422 | 352 | - | 394 | 365 | - |
| Stage 1 | - | - | - | - | - | - | 707 | 677 | - | 571 | 592 | - |
| Stage 2 | - | - | - | - | - | - | 694 | 577 | - | 802 | 672 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.1 | 0 | 0 | 17.1 |
| HCM LOS | | | A | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1082 | - | - | 1354 | - | - | 514 |
| HCM Lane V/C Ratio | - | 0.028 | - | - | - | - | - | 0.427 |
| HCM Control Delay (s) | 0 | 8.4 | - | - | 0 | - | - | 17.1 |
| HCM Lane LOS | A | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | - | 0.1 | - | - | 0 | - | - | 2.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.1 |

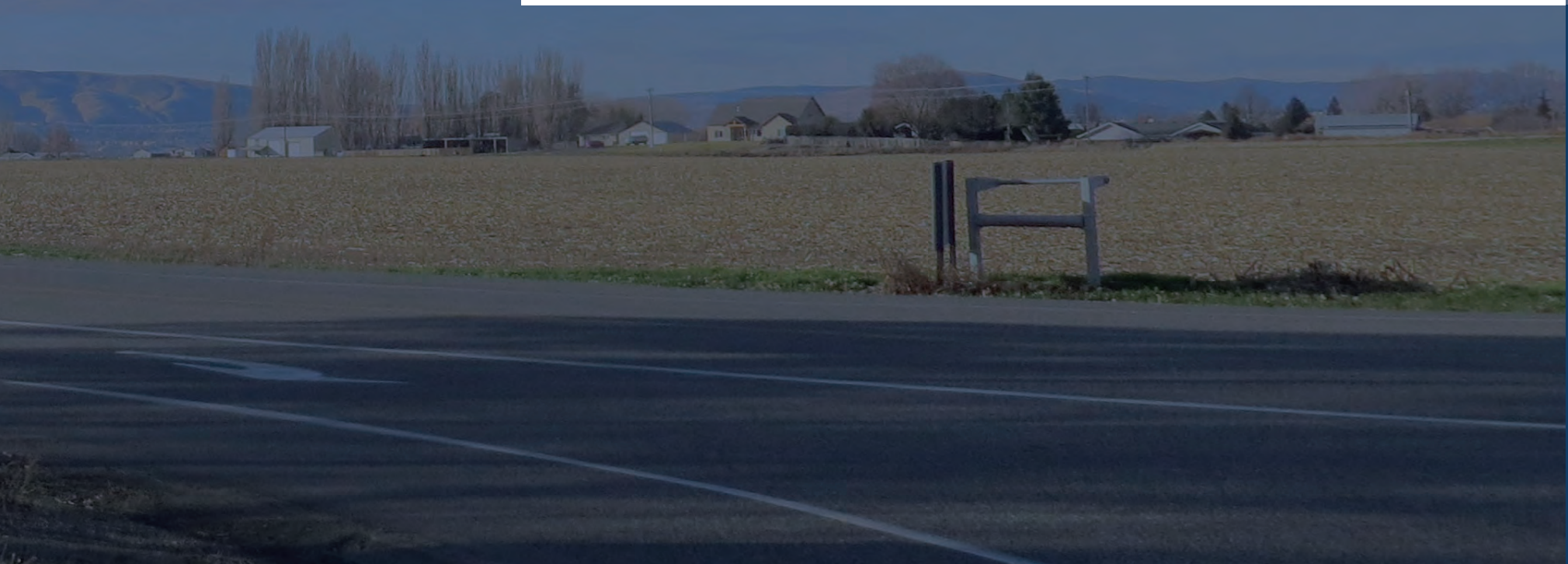
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 81 | 110 | 11 | 11 | 299 | 137 | 12 | 24 | 8 | 50 | 9 | 75 |
| Future Vol, veh/h | 81 | 110 | 11 | 11 | 299 | 137 | 12 | 24 | 8 | 50 | 9 | 75 |
| Conflicting Peds, #/hr | 4 | 0 | 6 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Heavy Vehicles, % | 3 | 3 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 6 | 6 | 6 |
| Mvmt Flow | 104 | 141 | 14 | 14 | 383 | 176 | 15 | 31 | 10 | 64 | 12 | 96 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 563 | 0 | 0 | 161 | 0 | 0 | 588 | 953 | 84 | 797 | 872 | 284 |
| Stage 1 | - | - | - | - | - | - | 362 | 362 | - | 503 | 503 | - |
| Stage 2 | - | - | - | - | - | - | 226 | 591 | - | 294 | 369 | - |
| Critical Hdwy | 4.16 | - | - | 4.14 | - | - | 7.5 | 6.5 | 6.9 | 7.62 | 6.62 | 7.02 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | 5.5 | - | 6.62 | 5.62 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | 5.5 | - | 6.62 | 5.62 | - |
| Follow-up Hdwy | 2.23 | - | - | 2.22 | - | - | 3.5 | 4 | 3.3 | 3.56 | 4.06 | 3.36 |
| Pot Cap-1 Maneuver | 998 | - | - | 1416 | - | - | 397 | 261 | 965 | 270 | 280 | 701 |
| Stage 1 | - | - | - | - | - | - | 635 | 629 | - | 509 | 530 | - |
| Stage 2 | - | - | - | - | - | - | 762 | 498 | - | 679 | 609 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 994 | - | - | 1408 | - | - | 296 | 225 | 959 | 215 | 242 | 698 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 296 | 225 | - | 215 | 242 | - |
| Stage 1 | - | - | - | - | - | - | 559 | 554 | - | 449 | 520 | - |
| Stage 2 | - | - | - | - | - | - | 633 | 489 | - | 561 | 536 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 3.7 | 0.3 | 20.9 | 24.3 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 283 | 994 | - | - | 1408 | - | - | 355 |
| HCM Lane V/C Ratio | 0.199 | 0.104 | - | - | 0.01 | - | - | 0.484 |
| HCM Control Delay (s) | 20.9 | 9 | 0.2 | - | 7.6 | 0.1 | - | 24.3 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 0.7 | 0.3 | - | - | 0 | - | - | 2.5 |

# Appendix C



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# FUTURE TRAFFIC FORECAST

DATE: September 2, 2020

TO: Pasco TSMP Project Team

FROM: Carl Springer, Aaron Berger | DKS Associates

SUBJECT: Pasco TSMP Task 4.2: Technical Memo #4 Project #19209-000

The City of Pasco is developing its first transportation system master plan (TSMP). Future forecasting is an important step in the transportation planning process and provides estimates of future travel demand. This memorandum documents the Future No-Build 2040 results associated with the travel demand model developed by Benton-Franklin Council of Governments (BFCG) for the Pasco area. The Pasco model was used to develop study intersection turn movement volumes for the 2040 TSMP horizon year.

## INTRODUCTION

This task considers how the City's transportation system will perform with the expected travel demand growth to 2040. The future baseline assessment will include any transportation improvement projects that have committed funding available. The BFCG travel demand model will be applied to forecast 2040 travel demands within the planning area, which was evaluated by the consulting team to flag major degradations compared to today's conditions. A summary of the Pasco Travel Demand Model results is provided in the following sections, including a discussion of the roadway network and land use assumptions included in the model.

## FUTURE FORECASTS

Future 2040 PM traffic volumes at all study intersections were developed from the Benton-Franklin Council of Governments (BFCG) regional travel demand model. The BFCG regional travel demand model includes both existing (2015) and future (2040) model scenarios in TransCAD which formed the basis of all future traffic analysis. This model provides a regional picture of growth and transportation improvements identified as feasible and funded within the next 20 years which will be used to identify and refine projects within Pasco for the TSMP.

## FUTURE TRANSPORTATION NETWORK

Transportation improvements assumed in the BFCG 2040 Model include projects submitted by the cities of Pasco, Kennewick, Richland, West Richland, and WSDOT that are reasonably expected to be complete by 2040 (*i.e.* financially constrained). Only new construction or projects that otherwise change a roadway's alignment or capacity in the RTP are included as network changes within the BFCG 2040 model. Projects within Pasco include:

- Argent Road Improvements (Road 40 to 20th Avenue)
- Wrigley Drive Extension (Convention Drive to Clemente Lane)
- Chapel Hill Boulevard Extension (Road 84 to Road 68)
- Sandifur Parkway Improvements (Road 68 to Convention Drive)
- Road 68 Widening (I-182 to Argent Road)
- Burns Road Improvements/Extension (Road 52 to Pasco City Limits)
- Lewis Street Rail Yard Overpass

Other projects included in the 2040 BFCG model outside of Pasco are summarized in Transition 2040, the Tri-Cities Metropolitan Area Regional Transportation Plan[1].

# 2040 TRAFFIC OPERATIONS ANALYSIS

The 2040 baseline analysis identifies how Pasco's transportation system is expected to operate with additional residents, businesses, and visitors. These conditions were assessed based on the forecasted increase in trips generated by future transportation growth without any new investments in the transportation infrastructure. This analysis describes where the transportation system will perform satisfactorily and identifies areas that will likely be congested without additional investments.

## 2040 NO BUILD TRANSPORATION SYSTEM OPERATIONS

Traffic operations (delay, LOS, and v/c) were analyzed for future (2040) conditions using Synchro. The Highway Capacity Manual (HCM) 6th Edition methodology was used for signalized and unsignalized intersection analyses, where possible; signalized intersection v/c ratios were post-processed to obtain intersection v/c ratios. If HCM 6th Edition results cannot be reported due to intersection geometry or other limitations, the capacity results were based on HCM 2000.

All intersections within the Pasco UGA were compared against the mobility targets identified by WSDOT, the City of Pasco, or Franklin County. These agencies currently use a Level of Service (LOS) D mobility standard which were applied at all study intersections as part of the TMP update.

[1] Benton-Franklin Council of Governments. *Transition 2040, Appendix F.* 2018.

Study intersection operations were analyzed using the methodology outlined in the traffic analysis and forecasting methodology memo[2]. Forecasted intersection operations were compared to applicable agency mobility targets to identify where significant congestion is likely to occur. Figure 1 shows the study intersections that do not meet mobility targets for both AM and PM peak hour in the 2040 no-build conditions. Also, Table 1 compares the existing and future no-build operational Level of Service (LOS) results for the study intersections that do not meet mobility targets for AM and PM peak periods. A complete listing of operating conditions (delay, LOS, and v/c) at study intersections is provided in the appendix.

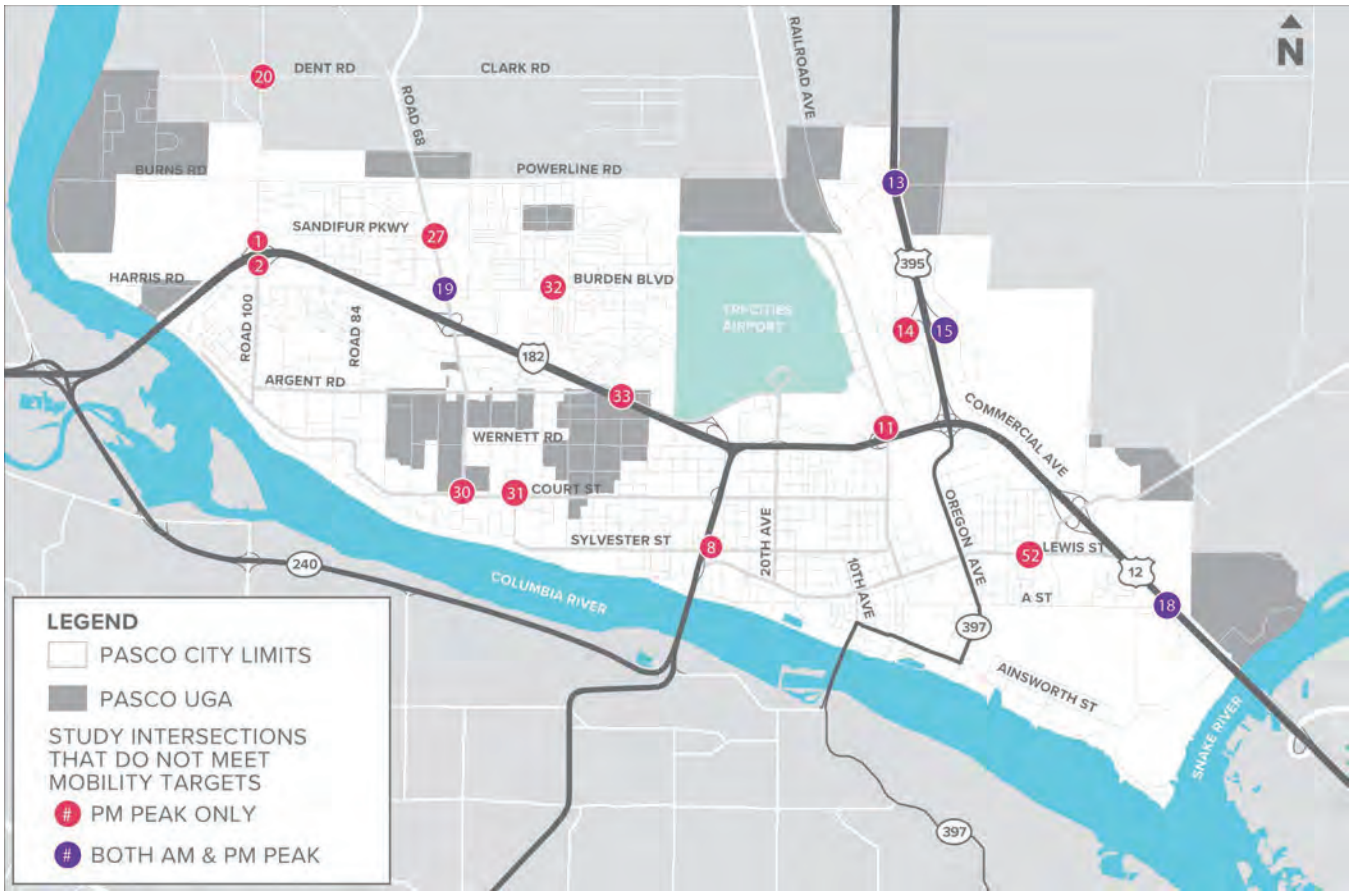



**FIGURE 1: STUDY INTERSECTIONS THAT DO NOT MEET MOBILITY TARGETS FOR AM AND PM PEAK PERIODS (2040 DESIGN HOUR CONDITIONS)**

[2] DKS Associates. Traffic Analysis & Forecasting Methodology memo . July, 2020.

**TABLE 1: STUDY INTERSECTIONS THAT DO NOT MEET MOBILITY TARGET LEVEL OF SERVICE (LOS) D FOR EXISTING AND FUTURE NO-BUILD (AM AND PM PEAK)**

| | | | AM (LOS) | | PM (LOS) | |
|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Existing | Future No-Build | Existing | Future No-Build |
| 1 | Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp | D | B | B | A | E |
| 2 | Road 100 & I 182 EB Off Ramp/I 182 EB On Ramp | D | B | C | B | F |
| 8 | Sylvester St & US 395 NB Off Ramp | D | A/C | A/C | A/E | A/F |
| 11 | 4th Ave & US 395 WB On/Off Ramp | D | A | B | D | E |
| 13 | US 395 & Foster Wells Rd | D | A/F | C/F | B/F | C/F |
| 14 | Rainier Ave/US 395 SB On/Off Ramp & Kartchner St | D | A/C | A/D | B/F | B/F |
| 15 | Commercial Ave/US 395 NB On/Off Ramp & Kartchner St | D | A/D | A/E | A/D | A/F |
| 18 | Hwy 12 & E A St | D | A/C | A/E | A/C | A/F |
| 19 | Road 68 & Burden Blvd | D | E | E | E | E |
| 20 | Road 100 & Dent Rd/Edelman Rd | D | | | A/C | A/F |
| 27 | Road 68 & Sandifur Pkwy | D | | | C | E |
| 30 | Road 68 & Court Street | D | | | A/D | A/F |
| 31 | Road 60 & Court Street | D | | | A/C | A/F |
| 32 | Madison Ave & Burden Blvd | D | | | A/F | A/F |
| 33 | Argent Rd & Rd 44 | D | | | A/F | B/F |
| 52 | Cedar Ave & Lewis St | D | | | A/C | A/E |

Overall, in comparison to the existing conditions, twice as many study intersections will not meet the mobility targets in the 2040 future no-build conditions. In other words, if future improvements are not made for the identified intersections that are currently operating less than LOS D, these intersections will continue to operate at a substandard level and additional intersections will not meet their mobility targets. For instance, the intersection of Road 68 and Burden Blvd reported LOS E for AM and PM peak periods for existing conditions and the LOS results will continue for the future no-build conditions. Also, the stop-controlled intersection of US 395 and Foster Wells Rd

experienced significant delays for AM and PM peak periods in both existing and future no-build conditions, however there is a planned improvement project that may impact future operational results[3].

With regards to the future no-build results, of the 19 study intersections in the AM peak period, four will not meet their respective mobility target during the 2040 design hour conditions. For the PM peak period, 16 of the 52 study intersection will exceed the 2040 mobility target. The four study intersections that are substandard under 2040 conditions for both AM and PM peak periods include: US 395 and Foster Wells Rd, Commercial Ave/US 395 NB On/Off Ramp and Kartchner St, Hwy 12 and E A St, and Road 68 and Burden Blvd. The majority of the study intersections that exceed their mobility target are located near highway interchanges.

Significant corridors of concern for the future no-build operations include Rd 100 and Rd 68. Three study intersections on both Rd 100 and Rd 68 will not meet the mobility targets during the 2040 design hour conditions. In particular, the intersection of Rd 68 and Court Street experience LOS LOS A/F due to the side streets operating over capacity during the PM peak period.

Another area of concern for the future no-build conditions are located at ramp terminals. The ramp terminals along Rd 100 and Kartchner St both experienced LOS E or F. Significant improvements should be made at these ramp terminal locations or additional ramps terminals should be considered to alleviate some of the traffic.

[3] US 396 Safety Corridor Improvements visit: https://wsdot.wa.gov/projects/us395/safety-corridor/home

# APPENDIX

**TABLE 3: FUTURE NO-BUILD 2040 RESULTS FOR AM PEAK**

| | | | Existing | | | Future No-Build | | |
|---|---|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Level of Service | Delay (secs) | Volume/ Capacity Ratio | Level of Service | Delay (secs) | Volume/ Capacity Ratio |
| 1 | Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp | D | B | 14 | 0.40 | B | 19 | 0.69 |
| 2 | Road 100 & I 182 EB Off Ramp/I 182 EB On Ramp | D | B | 15 | 0.68 | C | 35 | 0.98 |
| 3 | Road 68 & I 182 WB On/Off Ramp/I 182 WB On Ramp | D | A | 8 | 0.69 | A | 6 | 0.71 |
| 4 | Road 68 & I 182 EB On/Off Ramp/I 182 EB On Ramp | D | A | 7 | 0.47 | A | 6 | 0.61 |
| 5 | US 395 On/Off Ramp/Morasch Ln & Argent Rd | D | B | 13 | 0.44 | B | 16 | 0.63 |
| 6 | US 395 SB On Ramp/US 395 SB On/Off Ramp & Court St | D | A | 7 | 0.43 | A | 8 | 0.50 |
| 7 | US 395 NB Off Ramp/US 395 NB On Ramp & Court St | D | A | 9 | 0.49 | A | 8 | 0.45 |
| 8 | Sylvester St & US 395 NB Off Ramp | D | A/C | 0/15 | 0.26/0.45 | A/C | 0/19 | 0.35/0.51 |
| 9 | 20th Ave & I 182 WB On Ramp/I 182 WB Off Ramp | D | B | 12 | 0.65 | B | 15 | 0.79 |
| 10 | 20th Ave & I 182 EB On/Off Ramp | D | B | 15 | 0.63 | B | 19 | 0.72 |
| 11 | 4th Ave & US 395 WB On/Off Ramp | D | A | 8 | 0.36 | B | 11 | 0.54 |

| | | | Existing | | | Future No-Build | | |
|---|---|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Level of Service | Delay (secs) | Volume/ Capacity Ratio | Level of Service | Delay (secs) | Volume/ Capacity Ratio |
| 12 | 4th Ave & US 395 EB On/Off Ramp | D | B | 11 | 0.44 | B | 12 | 0.60 |
| **13** | US 395 & Foster Wells Rd | D | **A/F** | **10/54** | **0.23/0.22** | **C/F** | **16/596** | **0.47/1.33** |
| 14 | Rainier Ave/US 395 SB On/Off Ramp & Kartchner St | D | A/C | 9/21 | 0.16/0.19 | A/D | 9/29 | 0.16/0.32 |
| **15** | Commercial Ave/US 395 NB On/Off Ramp & Kartchner St | D | A/D | 8/33 | 0.06/0.5 | **A/E** | **8/45** | **0.06/0.6** |
| 16 | Hwy 12 EB On/Off Ramp & Lewis St & Hwy 12 EB Off Ramp | D | A/C | 10/22 | 0.29/0.63 | A/D | 10/27 | 0.29/0.73 |
| 17 | Hwy 12 WB Off Ramp/Hwy 12 WB On/Off Ramp & Lewis St | D | A/B | 9/14 | 0.31/0.18 | A/C | 9/16 | 0.34/0.27 |
| **18** | Hwy 12 & E A St | D | A/C | 0/23 | 0.25/0.34 | **A/E** | **0/46** | **0.33/0.62** |
| **19** | Road 68 & Burden Blvd | D | **E** | **64** | **0.90** | **E** | **59** | **0.95** |

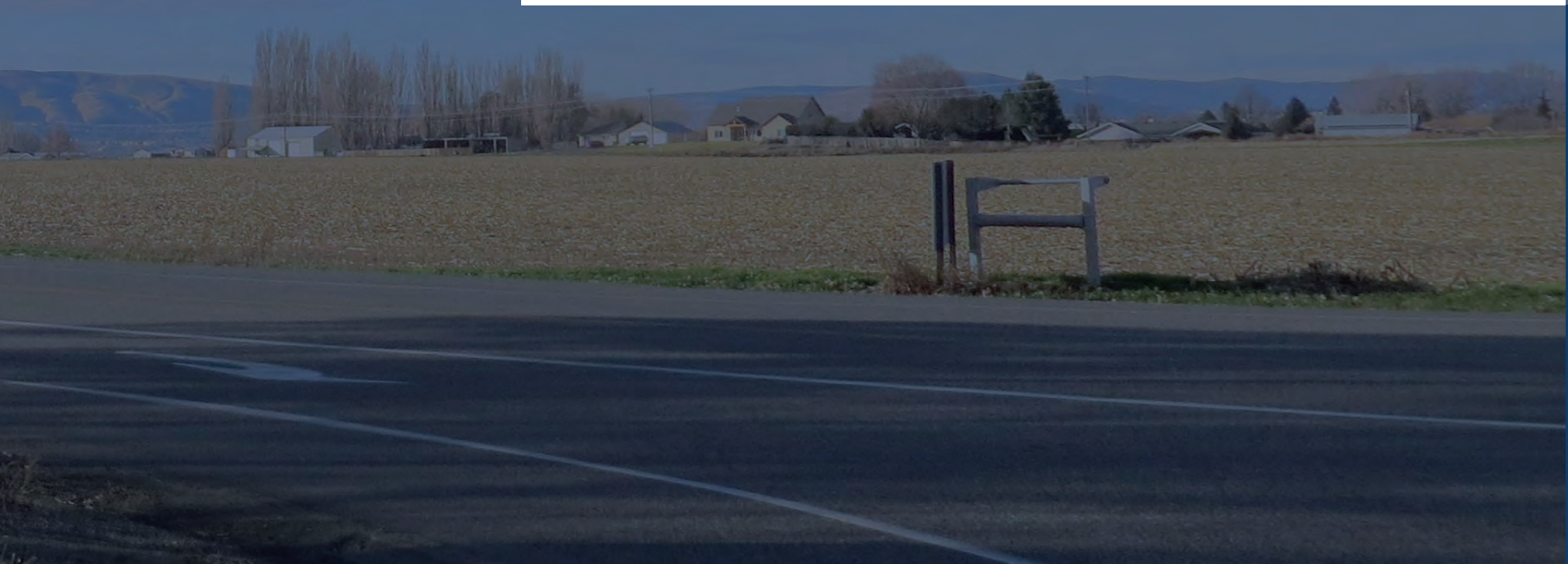
**TABLE 4: FUTURE NO-BUILD 2040 RESULTS FOR PM PEAK**

| | | | Existing | | | Future No-Build | | |
|---|---|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Level of Service | Delay (secs) | Volume/ Capacity Ratio | Level of Service | Delay (secs) | Volume/ Capacity Ratio |
| 1 | Road 100 & I 182 WB On Ramp/I 182 WB On/Off Ramp | D | A | 9 | 0.72 | **E** | **77** | **1.25** |
| 2 | Road 100 & I 182 EB Off Ramp/I 182 EB On Ramp | D | B | 19 | 0.86 | **F** | **125** | **1.24** |
| 3 | Road 68 & I 182 WB On/Off Ramp/I 182 WB On Ramp | D | B | 15 | 0.97 | A | 9 | 0.88 |
| 4 | Road 68 & I 182 EB On/Off Ramp/I 182 EB On Ramp | D | C | 24 | 0.76 | C | 25 | 0.83 |
| 5 | US 395 On/Off Ramp/Morasch Ln & Argent Rd | D | B | 17 | 0.47 | C | 21 | 0.62 |
| 6 | US 395 SB On Ramp/US 395 SB On/Off Ramp & Court St | D | A | 8 | 0.44 | A | 9 | 0.53 |
| 7 | US 395 NB Off Ramp/US 395 NB On Ramp & Court St | D | B | 11 | 0.62 | B | 11 | 0.67 |
| 8 | Sylvester St & US 395 NB Off Ramp | D | **A/E** | **0/38** | **0.23/0.82** | **A/F** | **0/97** | **0.31/1.06** |
| 9 | 20th Ave & I 182 WB On Ramp/I 182 WB Off Ramp | D | B | 18 | 0.82 | C | 22 | 0.86 |
| 10 | 20th Ave & I 182 EB On/Off Ramp | D | B | 13 | 0.54 | B | 13 | 0.58 |
| 11 | 4th Ave & US 395 WB On/Off Ramp | D | D | 42 | 0.82 | **E** | **60** | **0.94** |
| 12 | 4th Ave & US 395 EB On/Off Ramp | D | B | 11 | 0.55 | B | 13 | 0.62 |

| | | | Existing | | | Future No-Build | | |
|---|---|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Level of Service | Delay (secs) | Volume/ Capacity Ratio | Level of Service | Delay (secs) | Volume/ Capacity Ratio |
| 13 | US 395 & Foster Wells Rd | D | B/F | 12/74 | 0.26/0.53 | C/F | 19/2514 | 0.39/4.78 |
| 14 | Rainier Ave/US 395 SB On/Off Ramp & Kartchner St | D | B/F | 11/363 | 0.38/1.51 | B/F | 11/496 | 0.4/1.81 |
| 15 | Commercial Ave/US 395 NB On/Off Ramp & Kartchner St | D | A/D | 8/31 | 0.08/0.61 | A/F | 8/55 | 0.08/0.8 |
| 16 | Hwy 12 EB On/Off Ramp & Lewis St & Hwy 12 EB Off Ramp | D | A/C | 8/16 | 0.28/0.39 | A/C | 8/19 | 0.31/0.5 |
| 17 | Hwy 12 WB Off Ramp/Hwy 12 WB On/Off Ramp & Lewis St | D | B/B | 11/13 | 0.24/0.32 | B/B | 13/15 | 0.37/0.37 |
| 18 | Hwy 12 & E A St | D | A/C | 0/25 | 0.28/0.3 | A/F | 0/112 | 0.4/0.88 |
| 19 | Road 68 & Burden Blvd | D | E | 73 | 1.15 | E | 75 | 1.09 |
| 20 | Road 100 & Dent Rd/Edelman Rd | D | A/C | 8/25 | 0.13/0.23 | A/F | 10/2121 | 0.34/5.44 |
| 21 | Road 100 & Sandifur Parkway | D | B | 12 | 0.50 | C | 21 | 0.77 |
| 22 | Road 100 & Chapel Hill Rd | D | B | 12 | 0.77 | B | 15 | 0.62 |
| 23 | Road 100 & Argent Road | D | A/C | 8/18 | 0.24/0.12 | A/D | 8/29 | 0.31/0.23 |
| 24 | Road 84 & Argent Road | D | B | 12 | 0.245034 | B | 13 | 0.31 |
| 25 | Court Street & Road 84 | D | A/B | 8/11 | 0.12/0.12 | A/C | 8/16 | 0.25/0.17 |
| 26 | Road 68 & Edelman Road/Powerline Rd | D | A/C | 8/18 | 0.24/0.13 | B/A | 11/0 | 0.62/0 |
| 27 | Road 68 & Sandifur Pkwy | D | C | 21 | 0.70 | E | 58 | 0.98 |
| 28 | Road 68 & Chapel Hill Rd | D | B | 15 | 0.61 | B | 19 | 0.55 |
| 29 | Road 68 & Argent Road | D | C | 21 | 0.67 | C | 31 | 0.87 |
| 30 | Road 68 & Court Street | D | A/D | 8/34 | 0.13/0.73 | A/F | 9/278 | 0.25/1.48 |
| 31 | Road 60 & Court Street | D | A/C | 8/21 | 0.13/0.36 | A/F | 9/178 | 0.17/1.22 |

| | | | Existing | | | Future No-Build | | |
|---|---|---|---|---|---|---|---|---|
| # | Study Intersection | Mobility Target (LOS) | Level of Service | Delay (secs) | Volume / Capacity Ratio | Level of Service | Delay (secs) | Volume / Capacity Ratio |
| 32 | Madison Ave & Burden Blvd | D | A/F | 9/72 | 0.35/0.71 | A/F | 9/312 | 0.37/1.44 |
| 33 | Argent Rd & Rd 44 | D | A/F | 10/98 | 0.31/1.03 | B/F | 12/490 | 0.5/1.95 |
| 34 | 20th Ave & Argent Rd | D | B | 20 | 0.66 | C | 30 | 0.83 |
| 35 | 20th Ave & Court St | D | C | 24 | 0.68 | C | 27 | 0.77 |
| 36 | 20th Ave & Sylvester St | D | C | 21 | 0.46 | C | 21 | 0.45 |
| 37 | 20th Ave & Lewis Street | D | C | 21 | 0.48 | C | 22 | 0.56 |
| 38 | 10th Ave & Sylvester St | D | B | 12 | 0.52 | B | 12 | 0.52 |
| 39 | 10th Ave & Lewis St | D | C | 22 | 0.44 | C | 23 | 0.45 |
| 40 | 10th Ave & A St | D | B | 17 | 0.36 | B | 18 | 0.38 |
| 41 | 10th Ave & Ainsworth St | D | B | 18 | 0.62 | B | 18 | 0.58 |
| 42 | 4th Ave & Court St | D | B | 17 | 0.64 | C | 22 | 0.78 |
| 43 | 4th Ave & Sylvester St | D | A | 8 | 0.56 | A | 8 | 0.56 |
| 44 | 4th Ave & W Lewis St | D | B | 15 | 0.58 | B | 16 | 0.65 |
| 45 | 4th Ave & A St | D | A | 4 | 0.20 | A | 5 | 0.24 |
| 46 | 4th Ave & Ainsworth St | D | A/A | 8/9 | 0.29/0.02 | A/A | 8/9 | 0.3/0.02 |
| 47 | N Oregon Ave & E Lewis St | D | B | 17 | 0.38 | B | 20 | 0.58 |
| 48 | Oregon Ave/S Oregon Ave & E A St | D | B | 11 | 0.22 | B | 11 | 0.27 |
| 49 | Oregon Ave & Ainsworth St | D | A/C | 8/17 | 0.12/0.41 | A/C | 8/21 | 0.15/0.44 |
| 50 | Heritage Blvd & Lewis St & Avery Ave | D | A/C | 8/19 | 0.29/0.4 | A/D | 8/27 | 0.3/0.61 |
| 51 | E A St & Heritage Blvd | D | A/C | 8/17 | 0.12/0.43 | A/D | 9/28 | 0.16/0.6 |
| 52 | Cedar Ave & Lewis St | D | A/C | 9/24 | 0.15/0.48 | A/E | 9/37 | 0.18/0.65 |

# Appendix D



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# TRANSPORTATION SYSTEM STANDARDS

DATE: February 22, 2021

TO: Dan Ford, Jacob Gonzalez | City of Pasco

FROM: Rochelle Starrett, Carl Springer | DKS

SUBJECT: Pasco Transportation System Master Plan: Technical Memo #5 Project #19209-000

This document provides an overview of the transportation system standards recommended for adoption as part of the Pasco Transportation System Master Plan (TSMP). Included is a detail of the roadway functional classification system, typical designs for roadways, and pedestrian and bicycle facilities, special route designations, access spacing and mobility standards, and guidance for Traffic Impact Analysis requirements. Together, these standards will help ensure future facilities are designed appropriately and that all facilities are managed to serve their intended purpose.

## MULTI-MODAL STREET SYSTEM

Traditional roadway designs focus on the safety and flow of motor vehicle traffic. The one size fits all design approach is less effective at integrating the roadway with the character of the surrounding area and addressing the needs of other users of a roadway. For instance, the design of an arterial roadway through a commercial area has often traditionally been the same as one through a residential neighborhood, both primarily focused on the movement of motor vehicles.

In Pasco, all roadways are proposed to be multi-modal or “complete streets”, with each street serving the needs of the various travel modes. Streets in the city will not all be designed the same. It is recommended that Pasco classify the street system into a hierarchy organized by functional classification and street type (representative of their places). These classifications ensure that the streets reflect the neighborhood through which they pass, consisting of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes including pedestrians, bicyclists, transit riders, motor vehicles and freight. Within these street classifications, context sensitive designs may result in alternative cross-sections.

## ROADWAY FUNCTIONAL CLASSIFICATION

A city's street functional classification system is an important tool for managing the transportation system. It is based on a hierarchical system of roads in which streets of a higher classification, such as arterials, emphasize a higher level of mobility for through movements, while streets of a lower classification emphasize access to land uses.

Pasco currently has four functional classes:

- **Principal Arterials** connect major activity centers as well as the interstate system. They provide limited access and are primarily intended to serve regional traffic movement.
- **Minor Arterials** create direct connections through the city and can be found on the periphery of residential neighborhoods. They generally provide the primary connection to other Arterial or Collector Streets and access to larger developed areas and neighborhoods.
- **Collectors** provide local traffic circulation throughout the city and serve to funnel traffic from the arterial street network to streets of the same or lower classification. They typically have minor access restrictions.
- **Local Streets** provide local access and circulation for traffic, connect neighborhoods, and often function as through routes for pedestrians and bicyclists. Local Streets should maintain slow vehicle operating speeds and discourage through traffic.

The TSMP also recommends adding a new **Neighborhood Collector** functional classification to identify locations where local access needs should be balanced with enhanced pedestrian and bicycle amenities. These streets should maintain slow vehicle operating speeds to accommodate safe use by all modes and through traffic should be discouraged.

Functional classification provides a helpful framework for managing the city's transportation system and supporting other standards discussed in the following sections, including connectivity, spacing, freight routes, cross-sections, and access management.

Table 1 lists the desired spacing of each facility type throughout Pasco to ensure a high level of connectivity. Figure 1 illustrates the desired spacing for the arterial and collector network. Deviations to these guidelines may be needed in locations where there are significant barriers, such as topography, rail lines, freeways, existing development, and the presence of natural areas.

**TABLE 1: FACILITY SPACING GUIDELINES**

| FUNCTIONAL CLASSIFICATION | RECOMMENDED MAXIMUM SPACING[1,2] |
|---|---|
| PRINCIPAL ARTERIAL | 1 to 2 miles |
| MINOR ARTERIAL | 1 mile |
| COLLECTOR | ½ mile |

| FUNCTIONAL CLASSIFICATION | RECOMMENDED MAXIMUM SPACING[1,2] |
|---|---|
| NEIGHBORHOOD COLLECTOR | ¼ mile |
| LOCAL STREET | 300-500 feet |
| BICYCLE AND PEDESTRIAN FACILITIES | 300 feet |

1. Recommended maximum spacing refers to distance between facilities with the same or higher functional classification.
2. Deviations from the recommended maximum spacing are subject to approval by the City engineer.

People walking and biking benefit the most from closely spaced facilities because their travel is most affected by variation in distance. By providing walking and biking facilities or accessways that are spaced no less than 300 feet apart, Pasco will support active transportation within and between its neighborhoods. These connections also support high quality access to transit.


**FIGURE 1: DESIRED FACILITY SPACING**

The proposed roadway functional classification from the Pasco Comprehensive Plan was reviewed to identify locations where reclassifications should be considered to improve conformance with recommended spacing guidelines. The future functional classification map from the Comprehensive Plan includes instances of closely spaced arterials and sudden changes in functional classification. The recommended reclassifications aim to create a more consistent functional classification scheme and match a roadway's functional classification to their role in the transportation network. The existing road network was also reviewed to identify potential neighborhood collector routes. Neighborhood collectors were identified in locations where the functional classification map from the Pasco Comprehensive Plan previously identified two closely-spaced, parallel collectors which

serve similar land uses. Converting one of these routes to a neighborhood collector provides a classification that is more consistent with the actual use of the road and facilitates multimodal transportation. Neighborhood collectors were also designated on the local street system for routes which provide connections between several adjacent neighborhoods and the collector or arterial network.

The recommended reclassifications summarized in Figure 2 and Table 2 will provide better system spacing and connectivity. It is important to note that many of the existing roadways cross-sections will not meet the standard cross-sections of their new functional classification. Cross-section improvements are not expected outside of redevelopment.

**FIGURE 2: RECOMMENDED ROADWAY FUNCTIONAL CLASSIFICATION**

A draft version of this figure identifying all recommended changes is also included for review

**TABLE 2: FUNCTIONAL CLASSIFICATION OF NEW ROADWAYS**

| ROADWAY | EXTENTS | RECOMMENDED FUNCTIONAL CLASSIFICATION |
|---|---|---|
| SANDIFUR PARKWAY EXTENSION | Road 100 to New North-South Collector | Principal Arterial |
| DENT ROAD EXTENSION | Burns Road to Harris Road | Minor Arterial |
| SANDIFUR PARKWAY EXTENSION | New North-South Collector to Shoreline Drive | Minor Arterial |
| SANDIFUR PARKWAY EXTENSION | New North-South Collector to Shoreline Drive | Collector |
| NEW NORTH-SOUTH COLLECTOR | Dent Road to Harris Road | Collector |
| ROAD 84 EXTENSION | Burns Road to Columbia River Road | Collector |
| CONVENTION DRIVE EXTENSION | Burns Road to Clark Road | Collector |
| ROAD 60 EXTENSION | Burns Road to Clark Road | Collector |
| DESERET DRIVE | Dent Road to Road 52 | Collector |
| ROAD 76 EXTENSION | Burden Boulevard to Argent Road | Collector |
| ROAD 90 EXTENSION | Burns Road to UGA | Neighborhood Collector |
| THREE RIVERS DRIVE EXTENSION | Road 68 to Rio Grande Lane | Neighborhood Collector |
| WRIGLEY DRIVE EXTENSION | Clemente Lane to Road 68 Place | Neighborhood Collector |
| ROAD 52 EXTENSION | Burns Road Deseret Drive | Neighborhood Collector |
| WERNETT ROAD EXTENSION | Road 76 to Road 84 | Neighborhood Collector |

**TABLE 3: ROADWAY FUNCTIONAL CLASSIFICATION CHANGES**

| EXISTING FUNCTIONAL CLASSIFICATION | ROADWAY | EXTENTS | RECOMMENDED FUNCTIONAL CLASSIFICATION |
|---|---|---|---|
| MINOR ARTERIAL | Road 100 | Dent Road to UGA | Principal Arterial |
| MINOR ARTERIAL | 20th Avenue | Lewis Street to A Street | Principal Arterial |
| PRINCIPAL ARTERIAL | 10th Avenue | Ainsworth Street to A street | Minor Arterial |
| PRINCIPAL ARTERIAL | 4th Avenue | A Street to I-182 Westbound Ramp Terminal | Minor Arterial |
| COLLECTOR | Court Street | Road 100 to Harris Road | Minor Arterial |
| COLLECTOR | Harris Road | Court Street to Dent Road Extension | Minor Arterial |
| COLLECTOR | Dent Road | Burns Road to Road 68 | Minor Arterial |
| COLLECTOR | Clark Road | Road 68 to Road 52 | Minor Arterial |
| COLLECTOR | Chapel Hill Boulevard | Road 82 to Road 68 | Minor Arterial |
| COLLECTOR | A Street | 20th Avenue to 28th Avenue | Minor Arterial |
| COLLECTOR | 28th Avenue | A Street to Sylvester street | minor arterial |
| MINOR ARTERIAL | Chapel Hill Boulevard | Crescent Road to Road 100 | Collector |
| MINOR ARTERIAL | Road 60 | Court Street to Sylvester Street | Collector |
| MINOR ARTERIAL | Sylvester Street | Road 60 to 4th Avenue | Collector |
| MINOR ARTERIAL | Court Street | 4th Avenue to 1st Avenue | Collector |
| MINOR ARTERIAL | 1st Avenue | Court Street to A Street | Collector |
| LOCAL | Broadway Street | Wehe Avenue to Cedar Avenue | Collector |
| LOCAL | Cedar Avenue | Broadway Street to Lewis Street | Collector |
| LOCAL | Commercial Avenue | Kartchner Street to Hillsboro Road | Collector |
| MINOR ARTERIAL | Road 90 | Sandifur Parkway to Burns Road | Neighborhood Collector |

| EXISTING FUNCTIONAL CLASSIFICATION | ROADWAY | EXTENTS | RECOMMENDED FUNCTIONAL CLASSIFICATION |
|---|---|---|---|
| COLLECTOR | Wernett Road | Road 36 To Road 76 | Neighborhood Collector |
| COLLECTOR | 14th Avenue | Lewis Street to Court Street | Neighborhood Collector |
| COLLECTOR | Saratoga Lane | Chapel Hill boulevard to Argent Road | Neighborhood Collector |
| COLLECTOR | Road 44 | Argent Road to Madison Avenue | Neighborhood Collector |
| COLLECTOR | Madison Avenue | Road 44 to Burden Boulevard | Neighborhood Collector |
| COLLECTOR | Road 52 | Burden Boulevard to Burns Road | Neighborhood Collector |
| COLLECTOR | Wrigley Drive | Road 76 to Clemente Lane | Neighborhood Collector |
| LOCAL | Kohler Road | Dent Road to Hillcrest Drive | Neighborhood Collector |
| LOCAL | Road 92 | Court Street to Maple Drive | Neighborhood Collector |
| LOCAL | Road 76 | Argent Road to Court Street | Neighborhood Collector |
| LOCAL | Road 60 | Argent Road to Court Street | Neighborhood Collector |
| LOCAL | Road 48 | Argent Road to Sylvester Street | Neighborhood Collector |
| LOCAL | Wernett Road | Road 36 to Road 30 | Neighborhood Collector |
| LOCAL | 14th Avenue | Court Street to Lincoln Drive | Neighborhood Collector |
| LOCAL | Pearl Street | 24th Avenue to 13th Avenue & 10th Avenue to 5th Avenue | Neighborhood Collector |

| EXISTING FUNCTIONAL CLASSIFICATION | ROADWAY | EXTENTS | RECOMMENDED FUNCTIONAL CLASSIFICATION |
|---|---|---|---|
| LOCAL | 13th Avenue | Pearl Street to Riverview Drive | Neighborhood Collector |
| LOCAL | Riverview Drive | 13th Avenue to 12th Avenue | Neighborhood Collector |
| LOCAL | 10th Avenue | 12th Avenue to Pearl Street | Neighborhood Collector |
| LOCAL | Elm Avenue | A Street to Shepperd Street | Neighborhood Collector |
| LOCAL | Wrigley Drive | Road 68 Place to Roosevelt Drive | Neighborhood Collector |
| LOCAL | Roosevelt Drive | Wrigley Drive to Madison Avenue | Neighborhood Collector |
| LOCAL | Madison Avenue | Roosevelt Drive to Burden Boulevard | Neighborhood Collector |
| LOCAL | Vincenzo Drive | Road 100 to Majestia Lane | Neighborhood Collector |
| LOCAL | Majestia Lane | Vincenzo Drive to Road 90 | Neighborhood Collector |
| LOCAL | Road 90 | Sandifur Parkway to Burns Road | Neighborhood Collector |
| LOCAL | Wilshire Drive | Road 90 to Westmoreland Lane | Neighborhood Collector |
| LOCAL | Westmoreland Lane | Wilshire Drive to Overland Court | Neighborhood Collector |
| LOCAL | Overland Court | Westmoreland Lane to Westminster Lane | Neighborhood Collector |
| LOCAL | Westminster Lane | Overland Court to Stutz Drive | Neighborhood Collector |
| LOCAL | Stutz Drive | Westminster Lane to Road 84 | Neighborhood Collector |

| EXISTING FUNCTIONAL CLASSIFICATION | ROADWAY | EXTENTS | RECOMMENDED FUNCTIONAL CLASSIFICATION |
|---|---|---|---|
| LOCAL | Hudson Drive | Road 84 to Okanogan Lane | Neighborhood Collector |
| LOCAL | Okanogan Lane | Hudson Drive to Chehalis Drive | Neighborhood Collector |
| LOCAL | Chehalis Drive | Okanogan Lane to Three Rivers Drive | Neighborhood Collector |
| LOCAL | Three Rivers Drive | Chehalis Drive to Road 68 & Rio Grande Lane to Road 56 | Neighborhood Collector |
| LOCAL | Road 56 | Three Rivers Drive to Overton Road | Neighborhood Collector |
| LOCAL | Overton Road | Road 56 to Road 52 | Neighborhood Collector |

## FREIGHT NETWORK

Freight routes play a vital role in the economical movement of raw materials and finished products, while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The Washington State Freight and Goods Transportation system (FGTS) tonnage classification system identifies different categories of freight corridors based on annual freight tonnage moved[1]. The following corridors are identified in Pasco and summarized below in Figure 3:

- I-182
- US 12
- US 395
- WA 397
- Road 100 (I-182 to Harris Road)
- Road 68 (I-182 to Clark Road)
- 4th Avenue (I-182 to Glade Road)
- Ainsworth Avenue/Dock Street (WA 397 to Sacajawea Park Road)
- Harris Road (Road 100 to Shoreline Road)
- Shoreline Road (Harris Road to Burns Road)
- Burns Road (Shoreline Road to Dent Road)

[1] WSDOT. *Freight Transportation System in WA.* https://wsdot.maps.arcgis.com/apps/webappviewer/index.html?id=0e37044a459244d9b6414826b46e8c46

- Dent Road (Burns Road to Road 68)
- Clark Road (Road 68 to Glad Road)
- Taylor Flats Road (North of Road 68)
- Columbia River Road (North of Road 68)
- Glade Road (North of 4th Avenue)
- Railroad Avenue (North of Hillsboro Street)
- Foster Wells Road (East of US 395)
- Kartchner Street (Railroad Avenue to Commercial Avenue)
- Hillsboro Street (Railroad Avenue to Travel Plaza Way)
- Lewis Street (US 395 to 20th Avenue)
- 20th Avenue (Lewis Street to A Street)
- A Street (20th Avenue to US 12)
- Pasco Kahlotus Road (East of US 12)
- Lewis Street (WA 397 to US 12)
- 4th Avenue (Ainsworth Street to A Street)

Other critical freight corridors that are not currently included in the Washington FGTS include Sacajawea Park Road from Ainsworth Avenue to US 12 and Commercial Avenue from Lewis Street to Kartchner Street. Including these routes in a future update to the Washington FGTS will recognize their significance to Pasco's freight system and connect key industrial areas to existing FGTS corridors.

The city's freight transportation system also includes a rail yard, port, and the Tri-Cities Airport. Intermodal connections between these freight hubs, Pasco's industrial areas, and the tri-cities region are necessary to support the movement of goods. Primary routes serving these existing freight transportation needs are identified through the Washington FGTS although additional development in these areas could generate new freight traffic demands.

Pasco will benefit from ensuring that its freight routes are designed to accommodate the needs of its industrial and commercial areas, while protecting its residential neighborhoods from freight traffic. Having designated freight routes will help the city better coordinate and improve its efforts regarding both freight and non-freight transportation system users, including the following:

- **Roadway and Intersection Improvements** can be designed for freight vehicles with adjustments for turn radii, sight distance, lane width and turn pocket lengths.
- **Bicycle and Pedestrian Improvements** – such as protected or separated bike facilities, enhanced pedestrian crossings, and other safety improvements – can be identified to reduce freight impacts to other users, particularly along bikeways and walkways.
- **Roadway Durability** can be increased by using concrete instead of asphalt for the pavement surface.

- **Railroad Connections** can be coordinated to support businesses that ship goods by rail, particularly in areas where railroad sidings can be provided.
- **Coordination with Businesses and Adjacent Jurisdictions** can ensure that local and regional freight traffic uses Pasco's freight routes to travel within the City.

**FIGURE 3: WASHINGTON STATE FGTS FREIGHT NETWORK**

This figure will be developed at a later date

## PRIORITY BICYCLE NETWORK

Currently, Pasco does not maintain designated bicycle routes although residents of Pasco have provided numerous comments and input in support of bicycle facilities. These comments were received in both the online survey conducted for the TSMP and in the 2020 National Citizen Survey conducted by the City of Pasco[2]. Pasco's existing and planned bicycle facilities were reviewed to identify opportunities and constraints. Future bicycle facility gaps were identified and used to develop a comprehensive priority bicycle network for the City of Pasco. The priority bicycle network will be used to prioritize investments and develop a system that supports bicycle travel. The identified priority bicycle network for Pasco is shown in Figure 4.

The priority bicycle network includes a range of treatment types based on the roadway context (*e.g.,* vehicle speeds and volumes) and available right of way. This approach ensures that the proposed bicycle network fits within the existing neighborhood and street context.

**FIGURE 4: RECOMMENDED PASCO PRIORITY BIKE NETWORK**

A draft version of the priority bicycle network is available here: https://www.google.com/maps/d/u/0/edit?mid=1ZQGKg1iS76ttbP7cpz4f7Iu983_Lvng1&usp=sharing

[2] The National Community Survey. *Pasco, WA, Community Livability Report.* 2019. https://www.pasco-wa.gov/DocumentCenter/View/62086/NCS-Community-Livability-Report-Pasco-2020

## MULTIMODAL CROSS-SECTION STANDARDS

Different streets serve different purposes, and a functional classification system provides a framework for matching the size and type of various street elements with the intended purpose of the street. While a street's functional classification does not dictate which street elements to include, it does facilitate the selection of the multimodal facilities and widths that help the street fulfill its intended multimodal function. Adjacent land uses and available right-of-way also influence which elements are included in a specific segment.

Much of Pasco's street system is already built out and may not be easily reconfigured. However, cross-section standards should be applied to existing streets as significant redevelopment occurs and to new streets serving future development areas. For existing developed areas where significant redevelopment is not expected, the constrained cross-section standards will be applied. Constrained cross-sections may include narrower or limited travel lanes, and pedestrian and bicycle facilities, or accommodations that generally match those provided by the surrounding developed land uses. Cross-section standards can also provide a framework to guide design of existing facilities that may be candidates for future road diets or other reconfigurations.

Roadway cross-section design elements include travel lanes, curbs, planter strips, and pedestrian and bicycle facilities. The current standard cross-sections for the City of Pasco are summarized in the Pasco Design and Construction Standards[3] and summarized below for comparison with the recommended cross-sections.

The following cross-sections show current standards and recommended maximum elements and total facility widths for Pasco's functional classes. The recommended cross-sections were expanded to allow flexibility in the width of specific elements depending on the context of the adjacent land uses, as identified in the comprehensive plan zoning map. The cross-sections identified below include sections for each roadway type within each land use context to present the complete range of cross-section standards. These standards were compiled based on existing best practices for urban street design[4,5] and professional judgement. A specific roadway type may not exist within a specific land use context (*e.g.* there are currently no identified industrial neighborhood collectors).

### ARTERIAL ROADWAY STANDARDS

Currently, the City of Pasco maintains a five-lane cross-section standard for all minor arterials which includes a 5-foot bike lane and 7-foot sidewalks on each side of the street, seen in Figure 5. The City of Pasco does not currently have a roadway standard for their principal arterial network.

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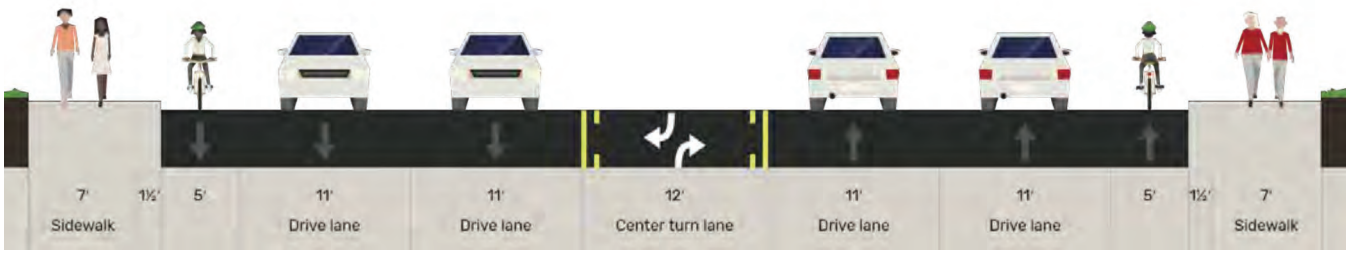
[3] City of Pasco. *Pasco Design and Construction Standards.* https://www.pasco-wa.gov/DocumentCenter/View/3229/City-of-Pasco-Standard-Drawings-

[4] NACTO. *Urban Street Design Guide.* https://nacto.org/publication/urban-street-design-guide/

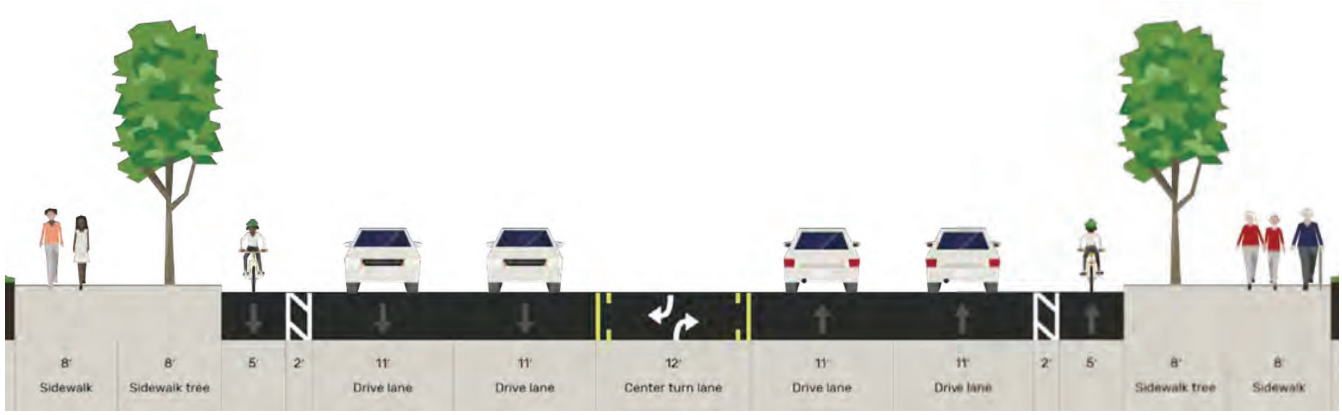
[5] NACTO. *Urban Bikeway Design Guide.* https://nacto.org/publication/urban-bikeway-design-guide/




Paved Width: 68 feet, Right of Way: 83 feet

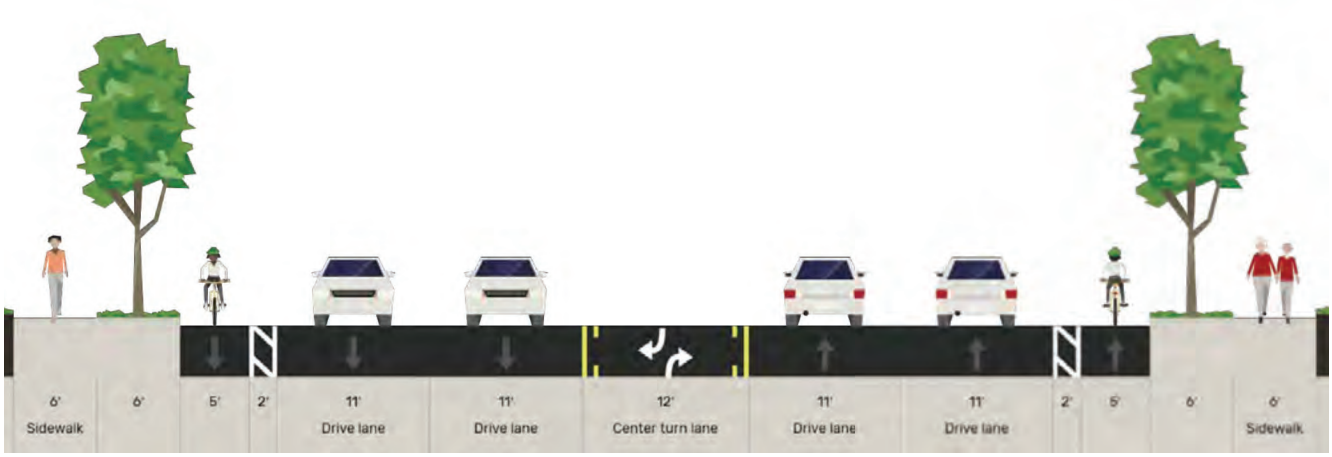
**FIGURE 5: EXISTING MINOR ARTERIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

The Pasco Transportation System Master Plan recommends converting the existing minor arterial roadway standard to the proposed principal arterial roadway standard and introducing a new three-lane minor arterial cross-section. Other key recommended changes include adding a planter strip between the sidewalk and street, on-street parking (for residential and mixed-use areas where less off-street parking is typically constructed), and a buffer between cyclists and adjacent travel lanes. The proposed principal arterial cross-sections, summarized in Figures 6A to 6D, and the proposed minor arterial cross-sections, summarized in Figures 7A to 7D, include flexible design standards for each cross-section element to accommodate the expected roadway users depending on the adjacent land use context. For example, the residential minor arterial cross-section standard will be applied as part of the proposed road reconfiguration on Court Street. A summary of the recommended widths for both the principal arterial and minor arterial cross-sections is also provided below in Tables 4 and 5.



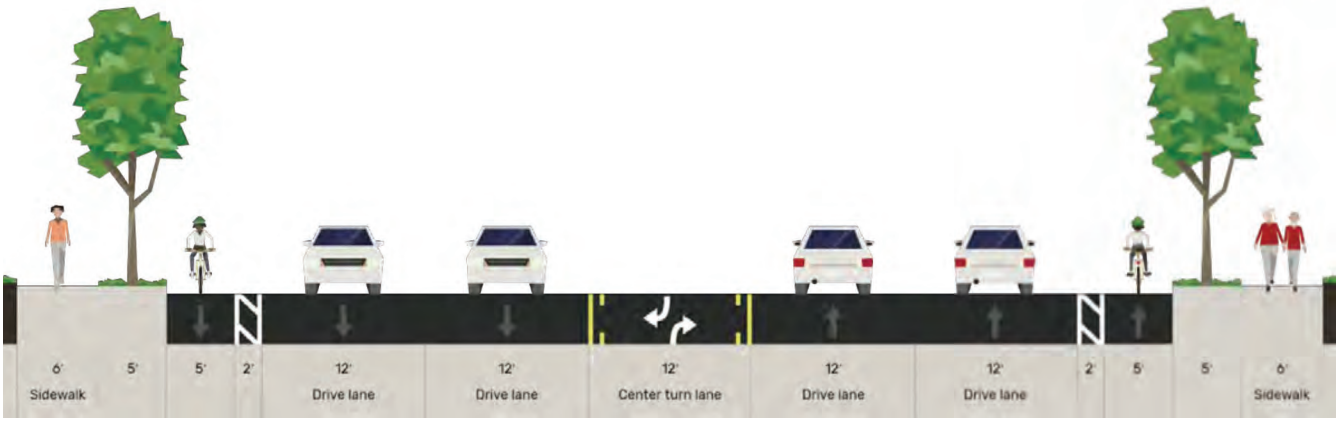

Paved Width: 70 feet, Right of Way: 102 feet

**FIGURE 6A: RECOMMENDED PRINCIPAL ARTERIAL – MIXED USE STREET CROSS-SECTION (SOURCE: STREETMIX)**



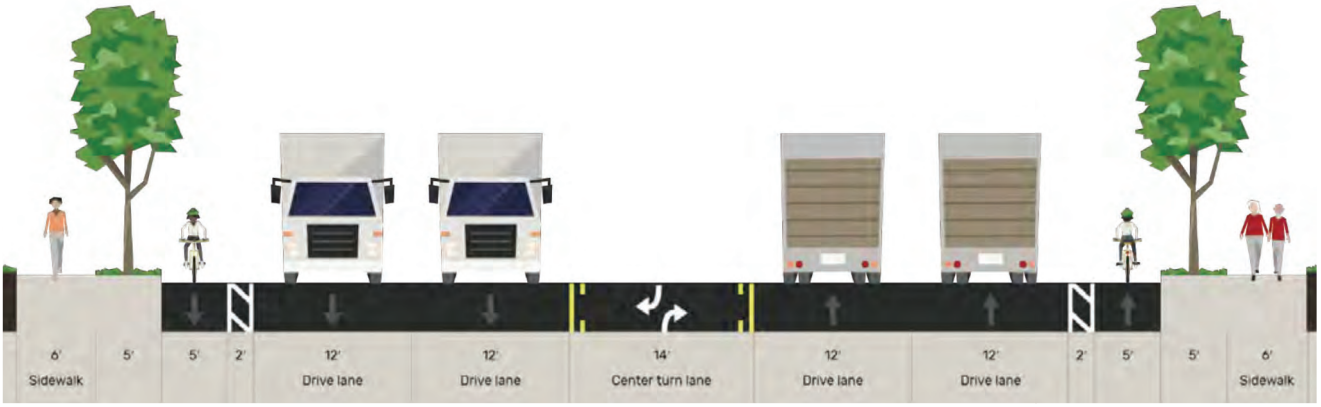

Paved Width: 70 feet, Right of Way: 94 feet

**FIGURE 6B: PROPOSED PRINCIPAL ARTERIAL – RESIDENTIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 74 feet, Right of Way: 96 feet

**FIGURE 6C: PROPOSED PRINCIPAL ARTERIAL – COMMERCIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 76 feet, Right of Way: 98 feet

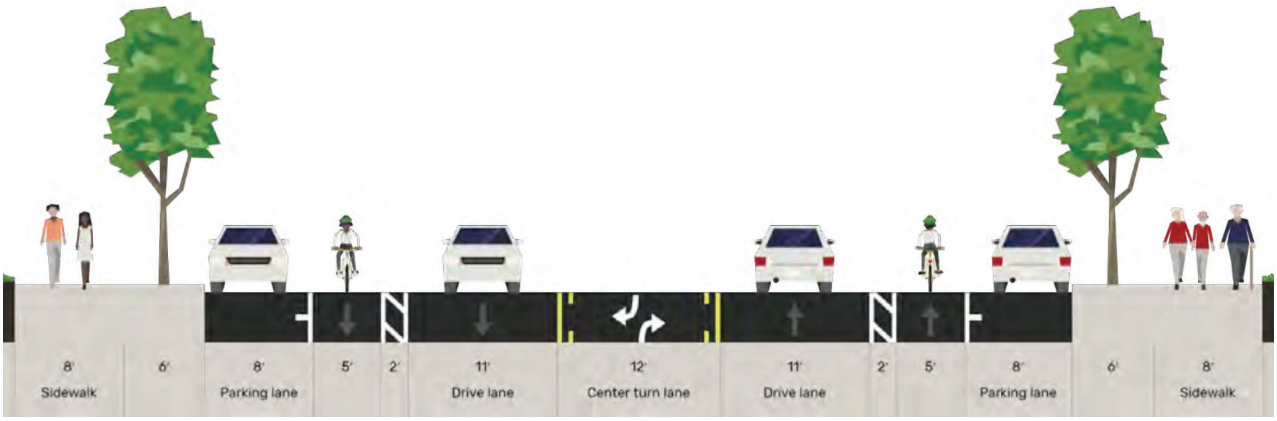
**FIGURE 6D: PROPOSED PRINCIPAL ARTERIAL – INDUSTRIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

**TABLE 4: RECOMMENDED PRINCIPAL ARTERIAL CROSS-SECTION OPTIONS**

| Cross-Section Element | Mixed Use | Residential | Commercial | Industrial |
|---|---|---|---|---|
| Sidewalk | 8 feet | 6 feet | 6 feet | 6 feet |
| Furnishing Zone or Landscape Strip | 8 feet | 6 feet | 5 feet | 5 feet |
| Bike Lanes | 5 feet | 5 feet | 5 feet | 5 feet |
| Buffer Width | 2 feet minimum | 2 feet minimum | 2 feet minimum | 2 feet minimum |
| On-Street Parking | Optional[1]; 8 feet | None | None | None |
| Vehicle Travel Lanes[2] | 2 to 4 lanes; 11 feet | 2 to 4 lanes; 11 feet | 2 to 4 lanes; 12 feet | 2 to 4 lanes; 12 feet |
| Median or Center Turn Lane | 12 feet | 12 feet | 12 feet | 14 feet |

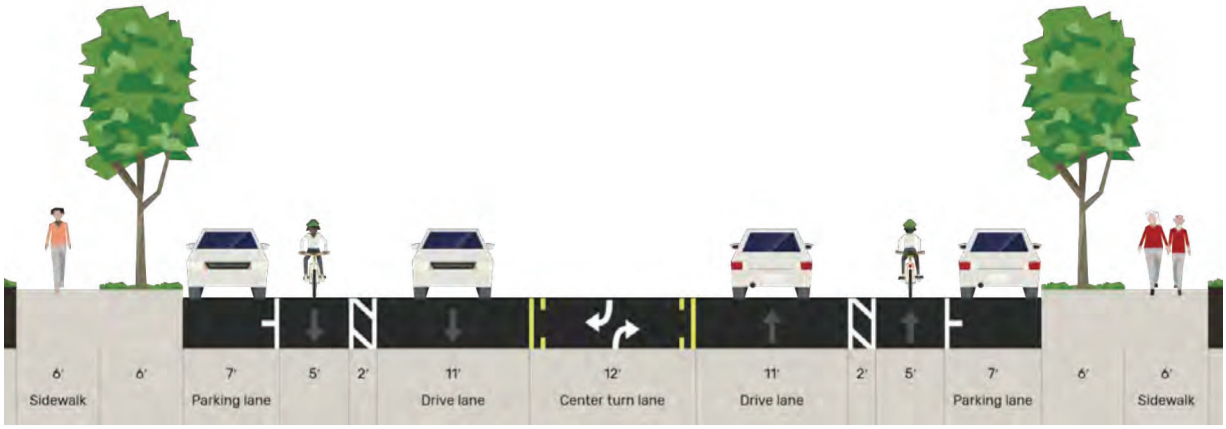
Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

1. On-street parking not recommended for a five-lane cross-section
2. The number of lanes is dependent on the expected street volume



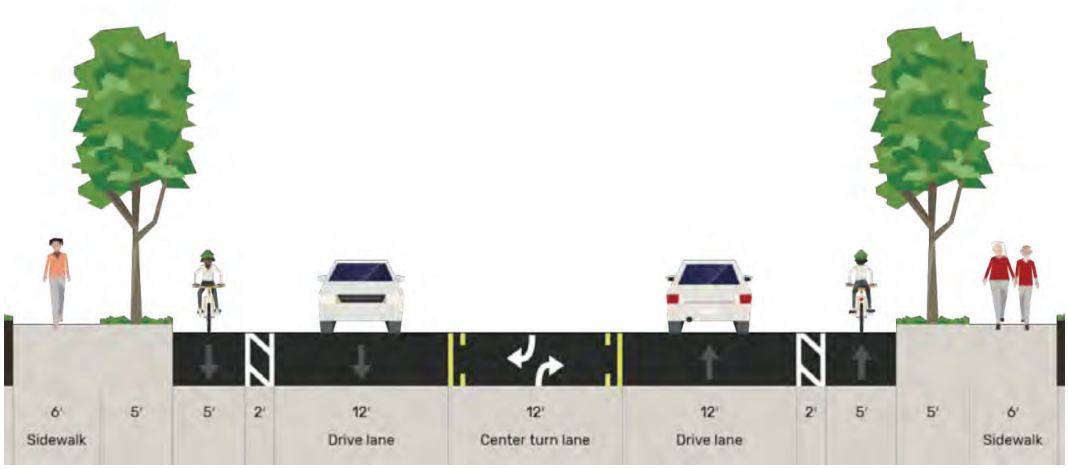

Paved Width: 64 feet, Right of Way: 92 feet

**FIGURE 7A: PROPOSED MINOR ARTERIAL – MIXED USE STREET CROSS-SECTION (SOURCE: STREETMIX)**



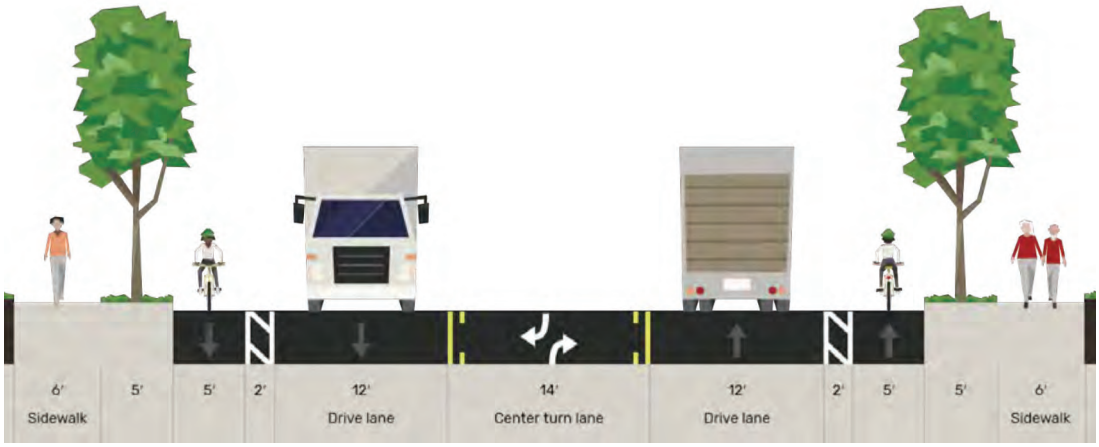

Paved Width: 62 feet, Right of Way: 86 feet

**FIGURE 7B: PROPOSED MINOR ARTERIAL – RESIDENTIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 50 feet, Right of Way: 72 feet

**FIGURE 7C: PROPOSED MINOR ARTERIAL – COMMERCIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 52 feet, Right of Way: 74 feet

**FIGURE 7D: PROPOSED MINOR ARTERIAL – INDUSTRIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

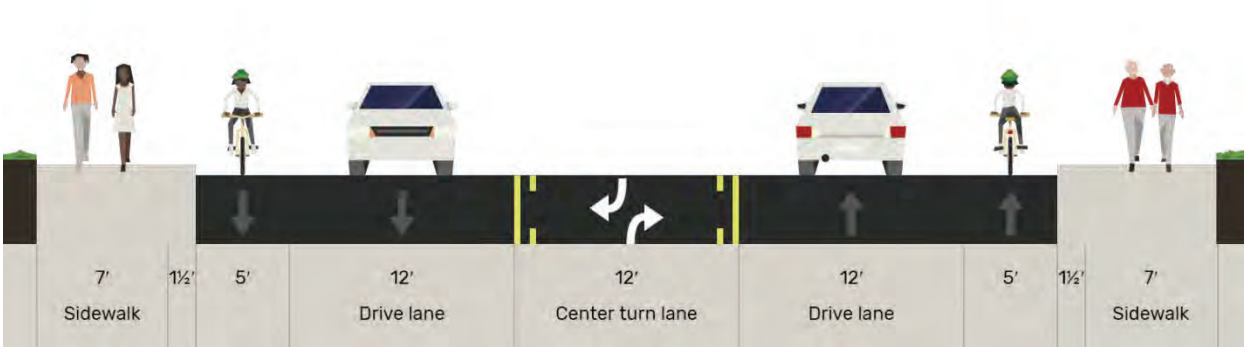
**TABLE 5: RECOMMENDED MINOR ARTERIAL CROSS-SECTION OPTIONS**

| Cross-Section Element | Mixed Use | Residential | Commercial | Industrial |
|---|---|---|---|---|
| Sidewalk | 8 feet | 6 feet | 6 feet | 6 feet |
| Furnishing Zone or Landscape Strip | 6 feet | 6 feet | 5 feet | 5 feet |
| Bike Lanes | 5 feet | 5 feet | 5 feet | 5 feet |
| Buffer Width | 2 feet minimum | 2 feet minimum | 2 feet minimum | 2 feet minimum |
| On-Street Parking | Optional; 8 feet | Optional; 7 feet | None | None |
| Vehicle Travel Lanes | 2 lanes; 11 feet | 2 lanes; 11 feet | 2 lanes; 12 feet | 2 lanes; 12 feet |
| Median or Center Turn Lane | 12 feet | 12 feet | 12 feet | 14 feet |

Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

## COLLECTOR ROADWAY STANDARDS

The City of Pasco's current collector cross-section includes three lanes for vehicles with 5-foot bike lanes and 7-foot sidewalks on each side. The existing collector cross-section is shown in Figure 8.

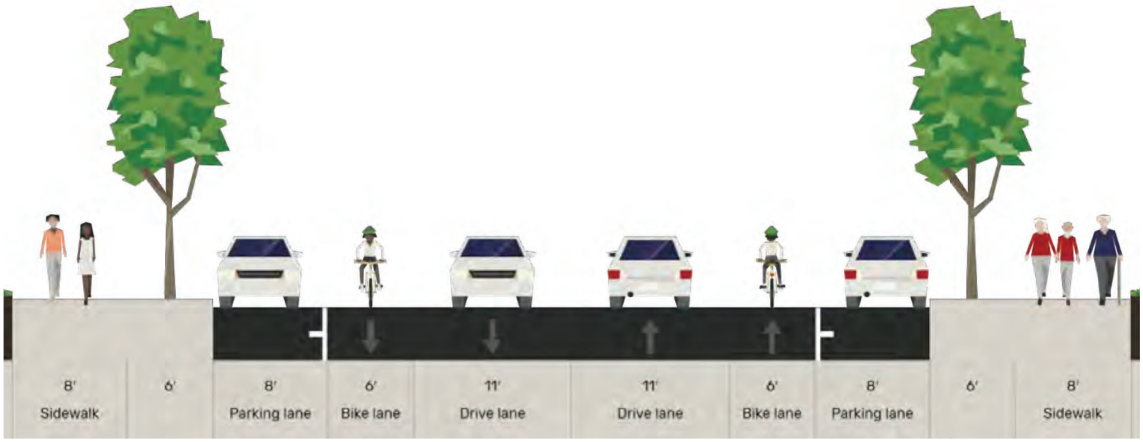



Paved Width: 48 feet, Right of Way: 63 feet

**FIGURE 8: EXISTING COLLECTOR STREET CROSS-SECTION (SOURCE: STREETMIX)**

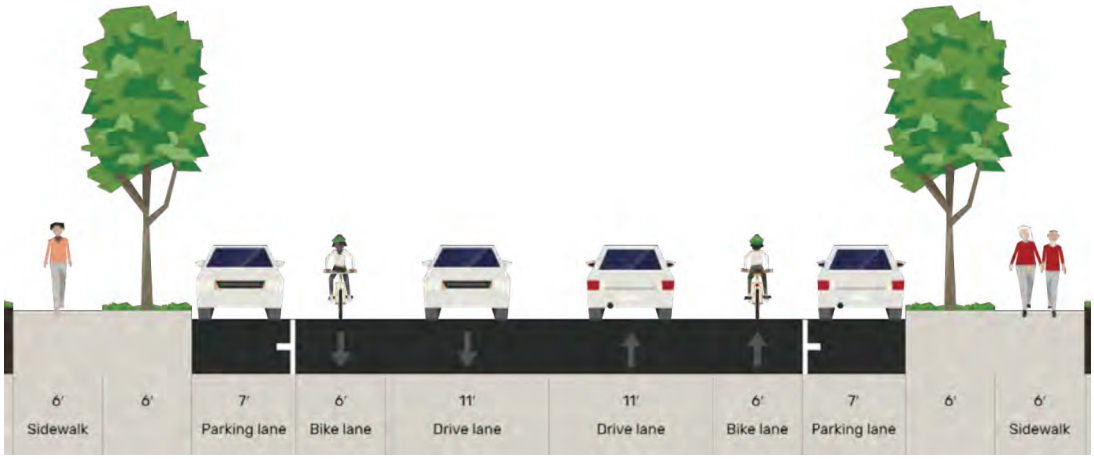
The Pasco Transportation System Master Plan recommends maintaining the existing collector roadway standard for collectors constructed in commercial and industrial areas where a center two-way left turn lane can better balance through movements for vehicles and business or freight access. The recommended collector street cross-section for mixed use and residential areas does not include a center two-way left turn lane to minimize the cross-section width and to support a

multimodal street character. Other key recommended changes include adding a planter strip between the sidewalk and street and including on-street parking (for residential and mixed-use areas where less off-street parking is typically constructed). The proposed collector cross-sections, summarized below in Figures 9A to 9D, include flexible design standards to accommodate the expected roadway users depending on the adjacent land use context. The proposed residential, commercial, or mixed-use standards will be applied to the planned road reconfiguration on Sylvester Street. The recommended widths are also summarized below in Table 6.



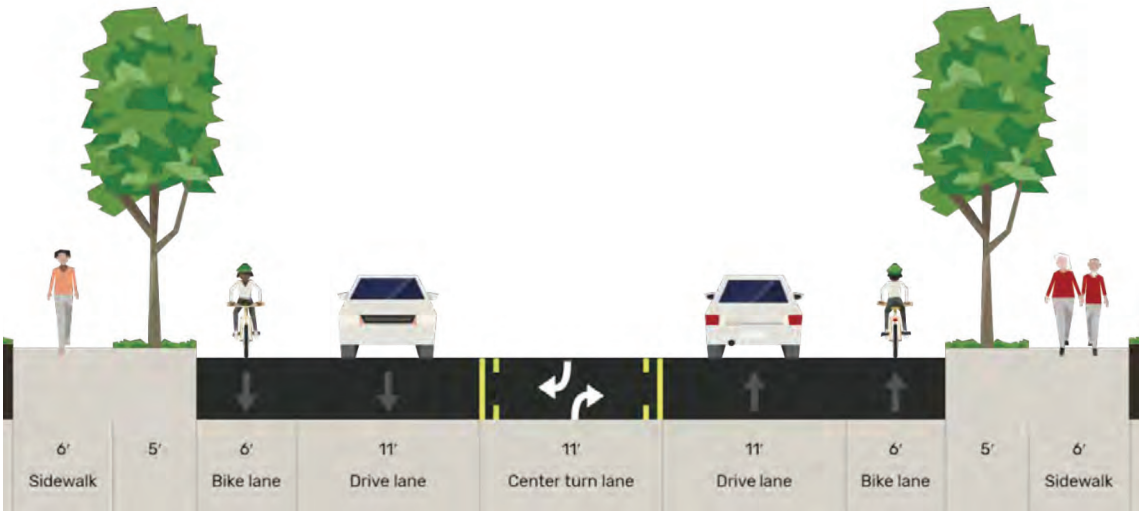

Paved Width: 50 feet, Right of Way: 78 feet

**FIGURE 9A: PROPOSED COLLECTOR – MIXED USE STREET CROSS-SECTION (SOURCE: STREETMIX)**



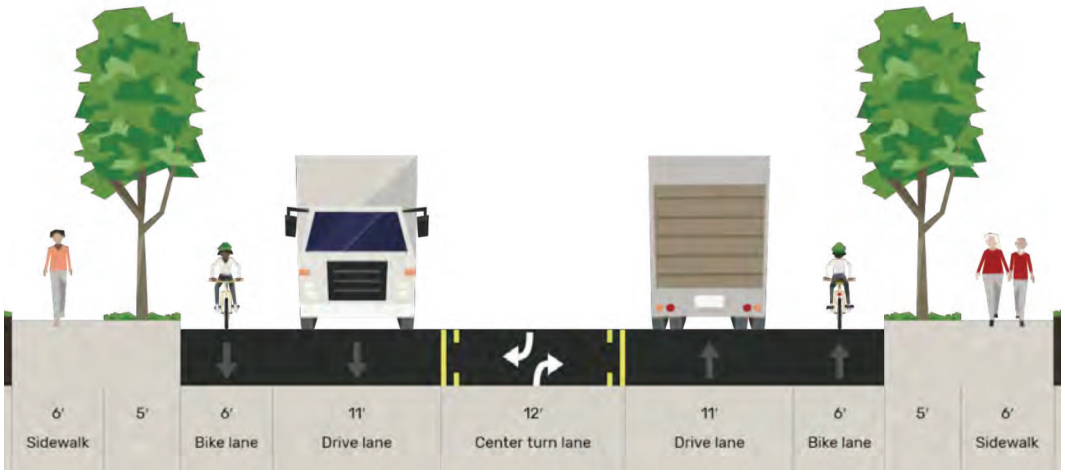

Paved Width: 48 feet, Right of Way: 72 feet

**FIGURE 9B: PROPOSED COLLECTOR – RESIDENTIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 45 feet, Right of Way: 67 feet

**FIGURE 9C: PROPOSED COLLECTOR – COMMERCIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 46 feet, Right of Way: 68 feet

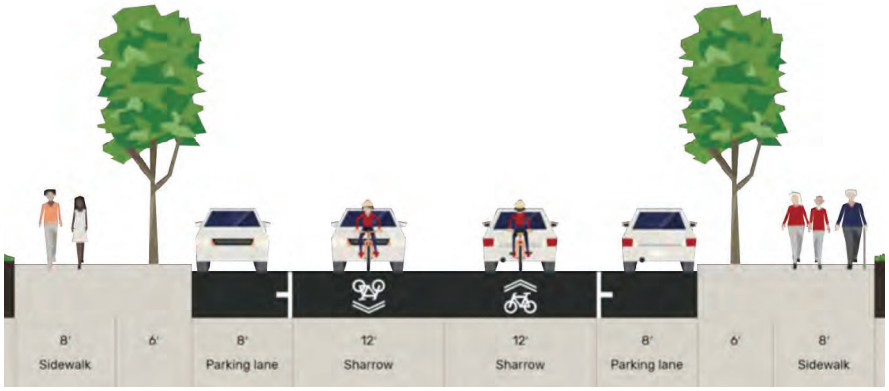
**FIGURE 9D: PROPOSED COLLECTOR – INDUSTRIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

**TABLE 6: RECOMMENDED COLLECTOR CROSS-SECTION OPTIONS**

| Cross-Section Element | Mixed Use | Residential | Commercial | Industrial |
|---|---|---|---|---|
| Sidewalk | 8 feet | 6 feet | 6 feet | 6 feet |
| Furnishing Zone or Landscape Strip | 6 feet | 6 feet | 5 feet | 5 feet |
| Bike Lanes | 6 feet | 6 feet | 6 feet | 6 feet |
| Buffer Width | None | None | None | None |
| On-Street Parking | Optional; 8 feet | Optional; 7 feet | None | None |
| Vehicle Travel Lanes | 2 lanes; 11 feet | 2 lanes; 11 feet | 2 lanes; 11 feet | 2 lanes; 11 feet |
| Median or Center Turn Lane | None | None | 11 feet | 12 feet |

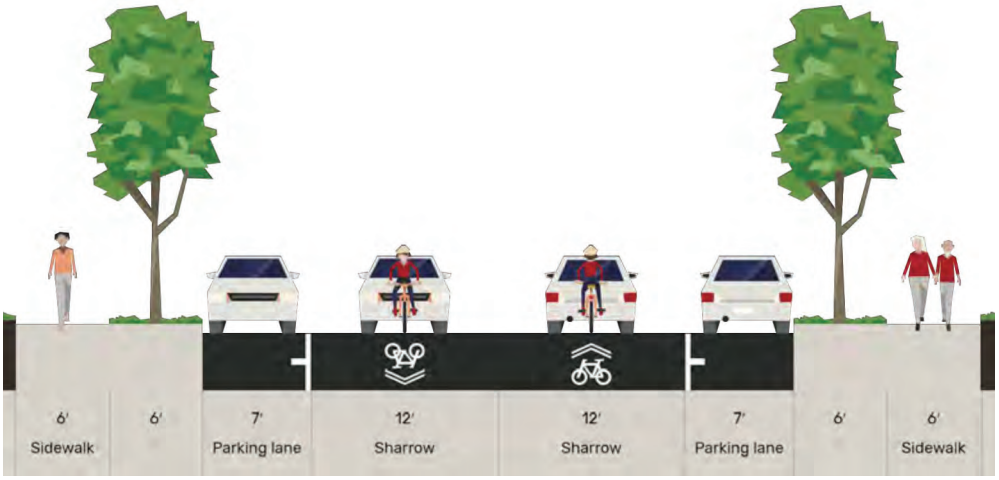
Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

The Pasco Transportation System Master Plan also recommends introducing a new neighborhood collector cross-section which balances mobility for all roadway users with home or business access. Neighborhood collectors are designed to provide more connectivity than local streets with slower vehicle speeds than a typical collector street through their design or other traffic calming treatments. These features make neighborhood collectors a critical component of a multimodal transportation system. This cross-section includes two vehicle travel lanes, on-street bike lanes (in commercial or industrial areas only), on-street parking (for residential and mixed-use areas where less off-street parking is typically constructed), a planter strip between the sidewalk and street, and sidewalks. The proposed neighborhood collector cross-sections, summarized below in Figures 10A to 10D, include flexible design standards for each cross-section element to accommodate the expected roadway users depending on the adjacent land use context. Recommended widths for each element are also summarized in Table 7. Potential traffic calming treatments which can be applied to neighborhood collectors is summarized below in the *Neighborhood Traffic Management Tools* section.



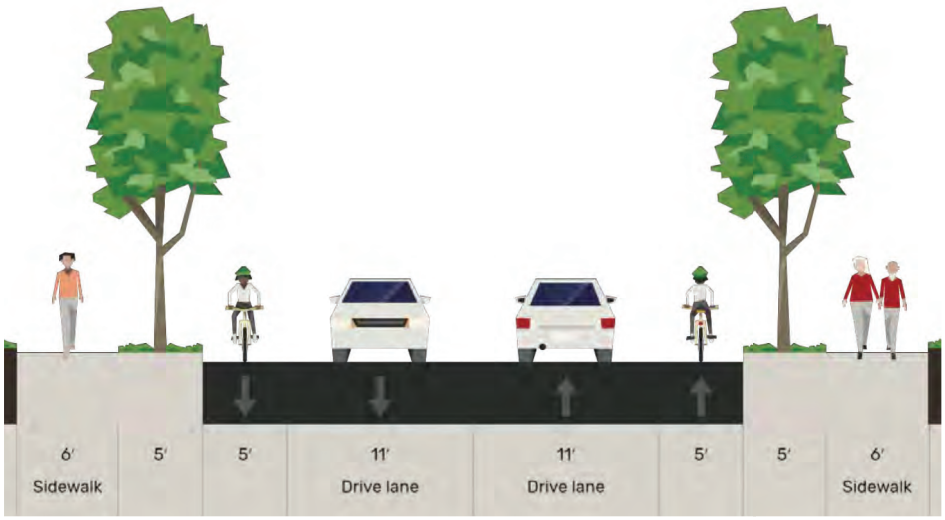

Paved Width: 40 feet, Right of Way: 68 feet

**FIGURE 10A: PROPOSED NEIGHBORHOOD COLLECTOR – MIXED USE STREET CROSS-SECTION (SOURCE: STREETMIX)**



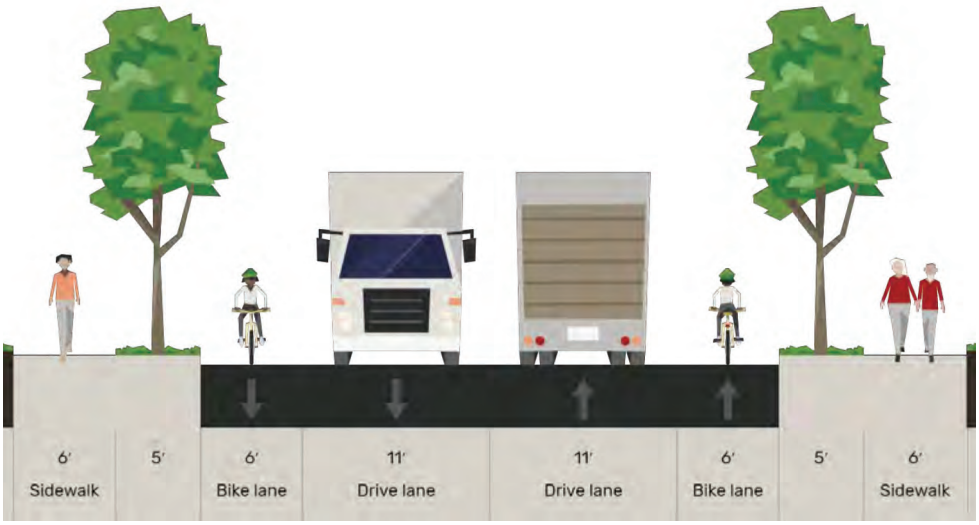

Paved Width: 38 feet, Right of Way: 62 feet

**FIGURE 10B: PROPOSED NEIGHBORHOOD COLLECTOR – RESIDENTIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 32 feet, Right of Way: 54 feet

**FIGURE 10C: PROPOSED NEIGHBORHOOD COLLECTOR – COMMERCIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 32 feet, Right of Way: 54 feet

**FIGURE 10D: PROPOSED NEIGHBORHOOD COLLECTOR – INDUSTRIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

**TABLE 7: RECOMMENDED NEIGHBORHOOD COLLECTOR CROSS-SECTION OPTIONS**

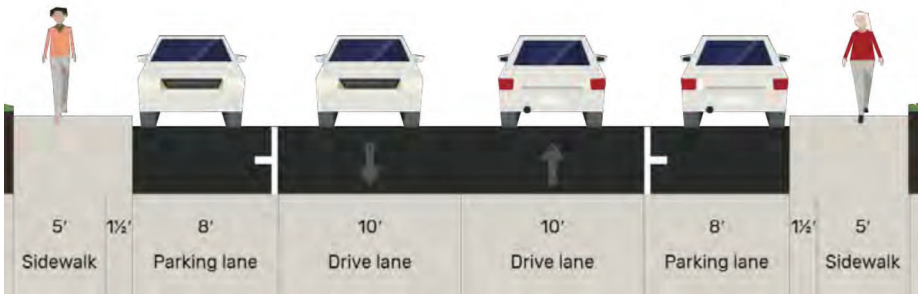
| Cross-Section Element | Mixed Use | Residential | Commercial | Industrial |
|---|---|---|---|---|
| Sidewalk | 8 feet | 6 feet | 6 feet | 6 feet |
| Furnishing Zone or Landscape Strip | 6 feet | 6 feet | 5 feet | 5 feet |
| Bike Lanes | None | None | 5 feet[1] | 6 feet[1] |
| Buffer Width | None | None | None | None |
| On-Street Parking | Optional; 8 feet | Optional; 7 feet | None | None |
| Vehicle Travel Lanes | 2 lanes; 12 feet | 2 lanes; 12 feet | 2 lanes; 11 feet | 2 lanes; 11 feet |
| Median or Center Turn Lane | None | None | None | None |

Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

1. Sharrows and traffic calming treatments can be provided in lieu of bike lanes

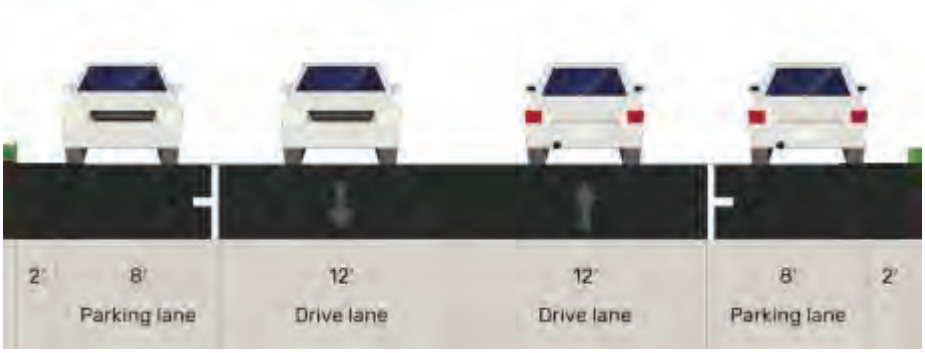
## LOCAL ROADWAY STANDARDS

Existing local roadway standards for the City of Pasco are summarized in Figures 11A and 11B for local streets with and without curb. Both cross-sections include two travel lanes and parking on each side of the street. Sidewalks are only provided for sections that are constructed with curb. All new roadways within the City of Pasco are recommended to be constructed with curb, so the TSMP did not include a local street option without curb.




Paved Width: 38 feet, Right of Way: 49 feet

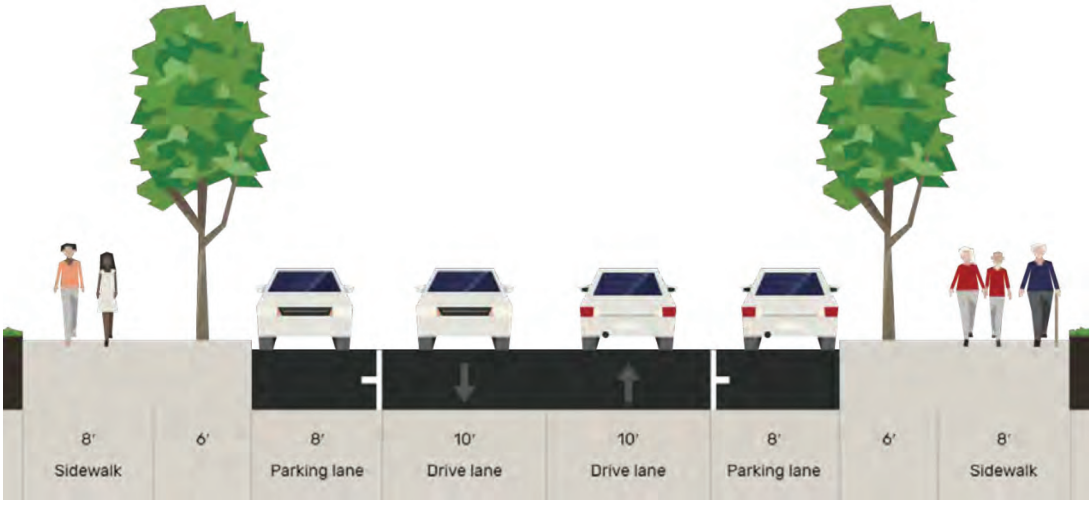
**FIGURE 11A: EXISTING LOCAL STREET CROSS-SECTION WITH CURB (SOURCE: STREETMIX)**




Paved Width: 44 feet, Right of Way: 44 feet

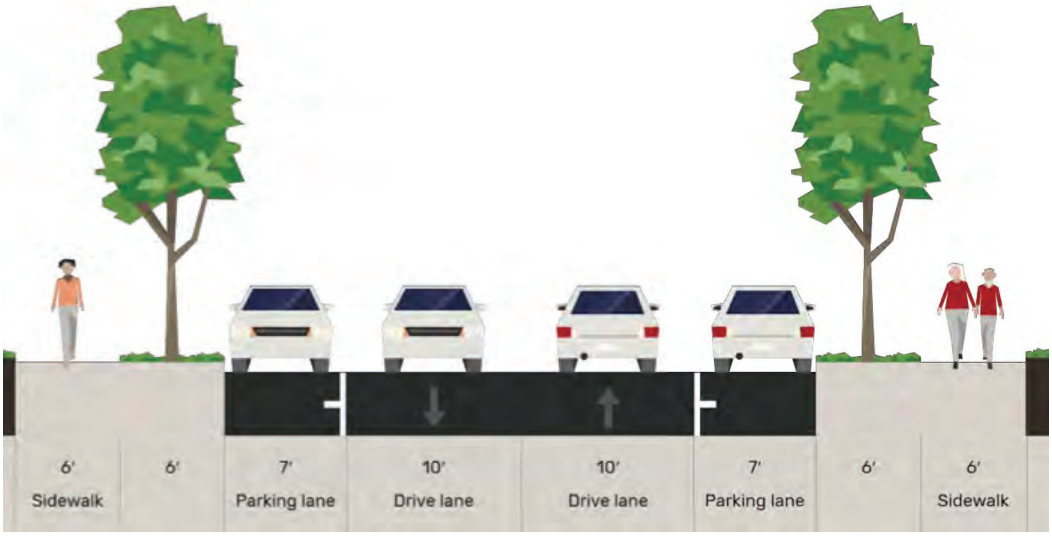
**FIGURE 11B: EXISTING LOCAL STREET CROSS-SECTION WITHOUT CURB (SOURCE: STREETMIX)**

The Pasco Transportation System Master Plan recommends maintaining the existing local roadway standard for streets constructed in mixed use and residential areas where on-street parking is needed to serve residences or businesses. On-street parking is less critical in commercial and industrial areas where large off-street parking areas are typically constructed, so the recommended local street cross-sections for commercial and industrial areas does not include parking. Other key recommended changes include adding a planter strip between the sidewalk and street. The proposed local street cross-sections, summarized below in Figures 12A to 12D, include flexible design standards for each cross-section element to accommodate the expected roadway users depending on the adjacent land use context. The recommended widths for each cross-section element is also summarized below in Table 8.



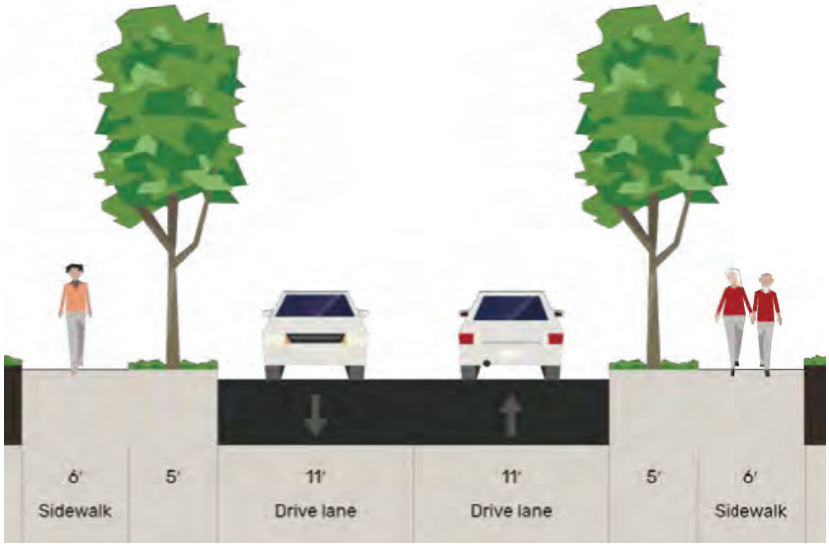

Paved Width: 36 feet, Right of Way: 64 feet

**FIGURE 12A: PROPOSED LOCAL STREET WITH CURB – MIXED USE STREET CROSS-SECTION (SOURCE: STREETMIX)**



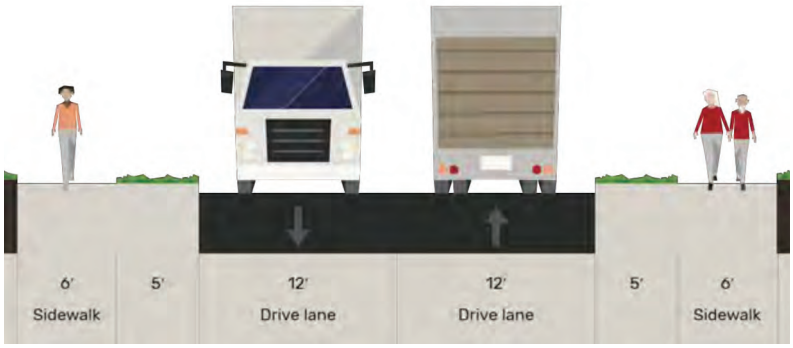

Paved Width: 34 feet, Right of Way: 58 feet

**FIGURE 12B: PROPOSED LOCAL STREET WITH CURB – RESIDENTIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 22 feet, Right of Way: 44 feet

**FIGURE 12C: PROPOSED LOCAL STREET WITH CURB – COMMERCIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**




Paved Width: 24 feet, Right of Way: 46 feet

**FIGURE 12D: PROPOSED LOCAL STREET WITH CURB – INDUSTRIAL STREET CROSS-SECTION (SOURCE: STREETMIX)**

**TABLE 8: RECOMMENDED LOCAL STREET CROSS-SECTION OPTIONS**

| Cross-Section Element | Mixed Use | Residential | Commercial | Industrial |
|---|---|---|---|---|
| Sidewalk | 8 feet | 6 feet | 6 feet | 6 feet |
| Furnishing Zone or Landscape Strip | 6 feet | 6 feet | 5 feet | 5 feet |
| Bike Lanes | None | None | None | None |
| Buffer Width | None | None | None | None |
| On-Street Parking | Optional; 8 feet | Optional; 7 feet | None | None |
| Vehicle Travel Lanes | 2 lanes; 10 feet | 2 lanes; 10 feet | 2 lanes; 11 feet | 2 lanes; 12 feet[1] |
| Median or Center Turn Lane | None | None | None | None |

Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

1. Additional width may be needed at intersections or driveways to accommodate truck turning movements

## CONSTRAINED ROADWAY OPTIONS

Constrained Streets are generally those where the construction may be challenging due to topography, environmentally sensitive areas, or historic areas. The constrained street standards will also be applied in existing, developed areas where significant redevelopment is not expected. These streets may require modified designs that may not be to scale with the adjacent land use to allow for reasonable construction costs. Constrained elements may include narrower or limited

travel lanes, and pedestrian and bicycle facilities, or accommodations that generally match those provided by the surrounding developed land uses. Recommended guidance for modifications to the standard designs is provided in Table 9. Any modification of a standard design requires approval prior to construction.

**TABLE 9: RECOMMENDED CONSTRAINED ROADWAY OPTIONS**

| Cross-Section Element | Principal & Minor Arterials | Collectors & Neighborhood Collectors | Local Streets |
|---|---|---|---|
| **Sidewalk** | 6 feet minimum width | 5 feet minimum width | 5 feet minimum width |
| **Furnishing Zone or Landscape Strip** | None[1] | None[1] | None[1] |
| **Bike Lanes** | 6 feet minimum width, no buffer | 5 feet minimum width or provide facility on adjacent corridor | N/A |
| **On-Street Parking** | None | None | None |
| **Vehicle Travel Lanes** | 2 to 4[2]<br>11 feet minimum width | 2<br>10 feet minimum width | 2<br>10 feet minimum width |
| **Median or Center Turn Lane** | As needed[3] | As needed[3] | None |

Note: Pasco's standard curb section is included as part of the furnishing zone or landscape strip width; Pasco's standard gutter section is included as part of the adjacent lane

1. Minimum 3 feet width for furnishing/landscape strip, if provided
2. The number of lanes is dependent on the expected street volume
3. Access restrictions required if no median is provided

## COUNTY ROADWAY OPTIONS

County roadways within Pasco's UGA face several unique challenges, including inconsistent roadway widths, lack of multimodal facilities, and inadequate ROW designations which can make it challenging to bring these roadways up to urban standards as these areas are incorporated. Furthermore, there is no existing formal agreement between Franklin County and the City of Pasco to guide the process for requiring dedication and improvements in the UGA or for jurisdictional transfer of County roads to the City. As a result, within the UGA ROW dedication and improvements, including multimodal facilities, are provided in an inconsistent, ad hoc manner. Three different approaches can be considered for establishing road annexation (or jurisdictional transfer) standards that ensures consistency in ROW widths and promotes multimodal facility development:

1. Interim or phased approaches for upgrading ROW in urbanizing areas (*i.e.* within the UGA)

2. Interagency Agreements that establish a coordinated strategy for ROW improvements among the City and the County/State
3. Standards/Fee-in-lieu that offer developers or property owners an alternative to directly providing roadway improvements

These methods and examples will be used to codify a process to manage ROW dedications within the UGA as part of the TSMP.

## PEDESTRIAN AND BICYCLE STANDARDS

The following sections detail various walking and biking facility standards and treatment guidelines.

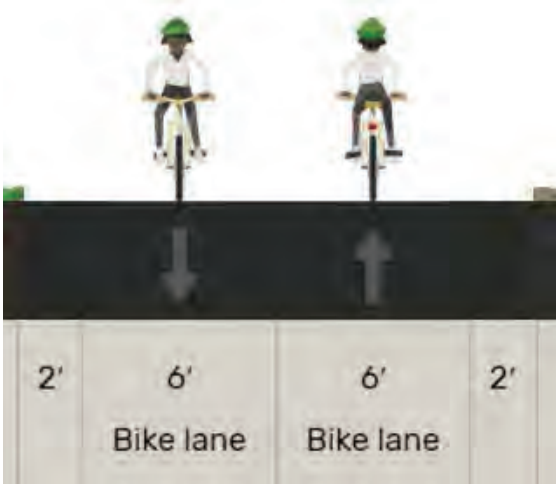
### WALKING AND BIKING FACILITIES

As shown in the multi-modal roadway cross-section standards, the existing city roadway design standards should be modified to require buffered bike lanes along principal arterial and minor arterial roadways for all land use types. Wider bike lanes will also be provided along collector roadways for all land use types and neighborhood collector roadways in industrial or commercial areas. Bicyclists should be accommodated with a 5-foot bike lane and 2-foot buffer along arterial roadways and a six-foot bike lane along collector roadways. Currently, the City of Pasco requires 5-foot bike lanes on all arterial and collector roadways, so the revised standards increase the total operating room for bicyclists. Shared streets for bikes are also recommended to be designated throughout the city and should include pavement markings/ signage.

All streets in mixed-use, residential, and industrial areas are also recommended to require wider sidewalks. Newly constructed roadways are recommended to include an 8-foot sidewalk in mixed-use areas and a 6-foot sidewalk in residential, commercial, and industrial areas. Additionally, each new street is recommended to include a landscape buffer strip or tree wells to create a more pleasant walking environment for pedestrians. Currently, the City of Pasco requires a 5-foot sidewalk in residential areas and a 7-foot sidewalk in commercial areas. The proposed cross sections increase the standard sidewalk width to 6 feet in residential areas and establish new standards for commercial areas that are based on the type of adjacent businesses. In mixed use areas (*e.g.,* downtown Pasco), wider 8-foot sidewalks will be supplemented with tree wells to accommodate increase pedestrian activity while auto-oriented commercial districts will provided narrower 6-foot sidewalks.

### SHARED-USE PATHS

Shared-use paths provide off-roadway facilities for walking and biking travel. Depending on their location, they can serve both recreational and transportation needs. Shared-use path designs vary in surface types and widths. Hard surfaces are generally better for bicycle travel. Widths need to provide ample space for both walking and biking and should be able to accommodate maintenance vehicles. Currently, the City of Pasco does not have a standard cross-section for shared-use paths. The recommended cross-section is summarized in Figure 13. The proposed cross-section is 12 feet wide, with 2-foot shoulders on each side.




Paved Width: 14 feet, Right of Way: 16 feet

**FIGURE 13: PROPOSED SHARED-USE PATH CROSS-SECTION (SOURCE: STREETMIX)**

## STREET CROSSINGS

Roadways with high traffic volumes and/or speeds in areas with nearby transit stops, residential uses, schools, parks, shopping and employment destinations generally require enhanced street crossings with treatments, such as marked crosswalks, high visibility crossings, and curb extensions to improve the safety and convenience. Crossing locations with higher volumes of pedestrians (either observed or projected) are also candidate locations for rectangular rapid flashing beacons or pedestrian hybrid beacons which increase the visibility of the crossing for drivers. Crossings should be consistent with the recommended block spacing standards shown in Table 5, and mid-block pedestrian and bicycle accessways are recommended to be provided at spacing no more than 300 feet. Exceptions include where the connection is impractical due to topography, inadequate sight distance, high vehicle travel speeds, lack of supporting land use or other factors that may prevent safe crossing (as determined by the city).

The city should consider adding enhanced pedestrian crossing treatments to increase protection where warranted by the combination of pedestrian demand volumes and cross traffic speeds and volumes. Candidate locations include trail crossings (*e.g.* Road 100/Planned FCID Canal Trail), parks or recreation, schools, or high-volume transit stops. Appendix A of National Cooperative Highway Research Program (NCHRP) Report 562, *Improving Pedestrian Safety at Unsignalized Crossings,* includes a procedure for treatment selection, with input variables including:

- Vehicle speed on the major street
- Pedestrian crossing distance
- Peak hour pedestrian volume
- Peak hour vehicle volume
- Local parameters such as motorist compliance, pedestrian walking speed, and pedestrian start-up and clearance time

NCHRP Report 562 includes worksheets for inputting the variables above and identifying the appropriate treatment type. A typical worksheet used for this evaluation is seen below in Figure 14.

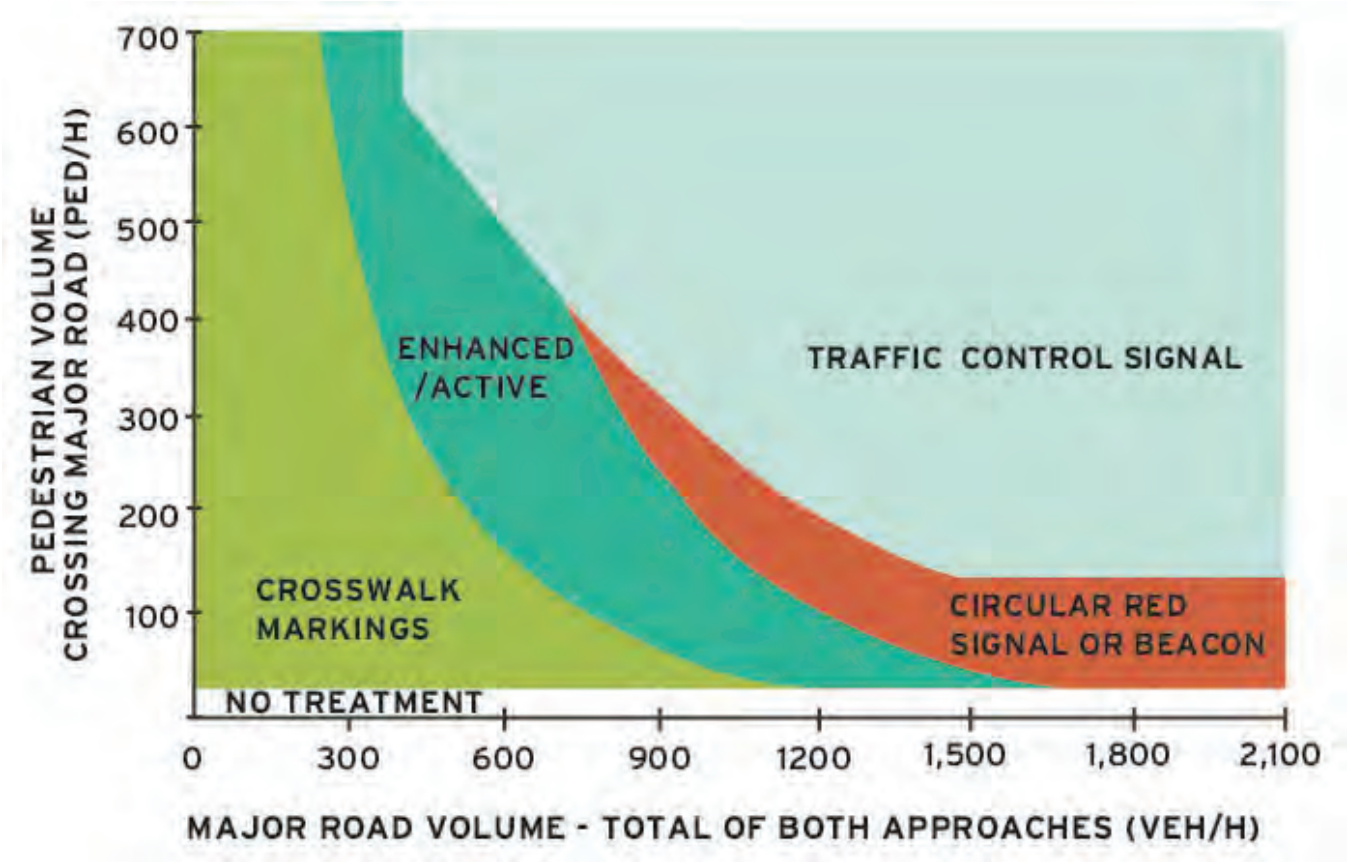



**FIGURE 14: NCHRP 562 SAMPLE EVALUATION WORKSHEET**

## NEIGHBORHOOD TRAFFIC MANAGEMENT TOOLS

Neighborhood Traffic Management (NTM) involves strategies to slow traffic, and potentially reduce volumes, creating a more inviting environment for pedestrians and bicyclists. NTM strategies target neighborhood livability on local streets, though a few can apply to collectors and arterials, such as raised median islands. Mitigation measures balance the need to manage vehicle speeds and volumes with the need to maintain mobility, circulation, and function for service providers, such as emergency responders. Examples of tools are shown in Figure 15.

### Chicanes

www.pedbikeimages.org/Dan Burden

### Chokers

www.pedbikeimages.org/Dan Burden

### Curb Extensions

www.pedbikeimages.org/Carl Sundstrom

### Diverters


www.pedbikeimages.org/Adam Fukushima

### Median Islands

www.pedbikeimages.org/Dan Burden

### Raised Crosswalks

www.pedbikeimages.org/Tom Harned

### Speed Cushions

NACTO Urban Street Design Guide

### Speed Hump


www.pedbikeimages.org/Dan Burden

### Traffic Circles

www.pedbikeimages.org/Carl Sundstrom

**FIGURE 15: SUMMARY OF NEIGHBORHOOD TRAFFIC MANAGEMENT STRATEGIES**

Table 10, below, lists common NTM applications. Any NTM project should include coordination with emergency response staff to ensure that public safety is not compromised. NTM strategies implemented on a state facility would require coordination with WSDOT regarding freight mobility considerations.

**TABLE 10: APPLICATION OF NTM STRATEGIES**

| NTM Application | Use by Function Classification | | | Impact | |
|---|---|---|---|---|---|
| | Arterials | Collectors | Local Streets | Speed Reduction | Traffic Diversion |
| CHICANES | | | ✓ | ✓ | ✓ |
| CHOKERS | | | ✓ | ✓ | ✓ |
| CURB EXTENSIONS | ✓ | ✓ | ✓ | ✓ | |
| DIVERTERS (WITH EMERGENCY VEHICLE PASS-THROUGH) | | ✓ | ✓ | | ✓ |
| MEDIAN ISLANDS | ✓ | ✓ | ✓ | ✓ | |
| RAISED CROSSWALKS | | | ✓ | ✓ | ✓ |
| SPEED CUSHIONS (WITH EMERGENCY VEHICLE PASS-THROUGH) | | | ✓ | ✓ | ✓ |
| SPEED HUMP | | | ✓ | ✓ | ✓ |
| TRAFFIC CIRCLES | | | ✓ | ✓ | ✓ |

The City of Pasco does not currently have a formal neighborhood traffic management program. If such a program were desired to help respond to future issues, suggested elements include:

- Provide a formalized process for citizens who are concerned about the traffic on their neighborhood street. The process could include filing a citizen request with petition signatures and a preliminary evaluation. If the evaluation finds cause for concern, a neighborhood meeting would be held and formal data would be collected and evaluated. If a problem were found to exist, solutions would be identified and the process continued with neighborhood meetings, feedback from service and maintenance providers, cost evaluation, and traffic calming device implementation. Six months after implementation the device would be evaluated for effectiveness.
- For land use proposals, in addition to assessing impacts to the entire transportation network, traffic studies for new developments must also assess impacts to residential streets. A recommended threshold to determine if this additional analysis is needed is if the proposed project increases through traffic on residential streets by 40 or more vehicles during the evening peak hour or 200 vehicles per day. Once the analysis is performed, the

threshold used to determine if residential streets are impacted would be if their daily traffic volume exceeds 1,800 vehicles.

## ACCESS MANAGEMENT & STREET CONNECTIVITY STANDARDS

Access management provides safe and efficient access to the transportation system for all users. Currently, the City of Pasco only manages access through restrictions on the placement of driveways. New residential driveways must be located 25 feet from an existing intersection, while new commercial driveways must be placed in coordination with the Public Works Director[6]. Expanded access management spacing standards which account for the different roadway functional classifications are recommended for the City of Pasco to better manage driveway construction. These standards are summarized in Table 11.

**TABLE 11: RECOMMENDED ACCESS MANAGEMENT SPACING STANDARDS**

| SPACING GUIDELINES[1] [2] | PRINCIPAL ARTERIALS | MINOR ARTERIALS | COLLECTORS | NEIGHBORHOOD COLLECTORS | LOCAL STREETS |
|---|---|---|---|---|---|
| MINIMUM DRIVEWAY SPACING (DRIVEWAY TO DRIVEWAY) [2] | 300 feet | 250 feet | 150 feet | 75 feet | N/A |
| MINIMUM FULL-ACCESS DRIVEWAY SPACING (SETBACK FROM INTERSECTION) | 300 feet[3] | 250 feet | 150 feet | 75 feet | 25 feet |
| MINIMUM RIGHT-IN/RIGHT-OUT DRIVEWAY SPACING (SETBACK FROM INTERSECTION) | 150 feet[3] | 125 feet | 75 feet | 50 feet | 25 feet |

1. All distances measured from the edge of adjacent approaches
2. A property must construct access to a lower classified roadway, where possible
3. WSDOT requires 1,320 between an interchange and the closest driveway[7]

The City of Pasco recently adopted block length and block perimeter guidelines to control access to their street network. Under this new guidance for most zoning designations, block lengths shall not exceed 660 feet and the block perimeter shall not exceed 1,760 feet. Previously blocks could not exceed 1,320 feet for residential uses or 600 feet for commercial uses[8]. In addition to these new standards, Pasco should consider adopting standards which govern the minimum block size and the

[6] City of Pasco. *Pasco Municipal Code Section 12.04.100 Driveway Standards.* https://pasco.municipal.codes/PMC/12.04.090

[7] State of Washington. *Washington Administrative Code Section 468-52-040 Access Control Classification System and Standards.* https://app.leg.wa.gov/wac/default.aspx?cite=468-52-040

[8] City of Pasco. *Street Connectivity – Supplemental Memorandum for CA2019-013.* September 17, 2020.

maximum distance between pedestrian or bicycle access points. The existing street connectivity standards plus these additional guidelines is summarized below in Table 12.

**TABLE 12: EXISTING AND RECOMMENDED STREET CONNECTIVITY STANDARDS**

| SPACING GUIDELINES | PRINCIPAL ARTERIALS | MINOR ARTERIALS | COLLECTORS | NEIGHBORHOOD COLLECTORS | LOCAL STREETS |
|---|---|---|---|---|---|
| MAXIMUM BLOCK SIZE (PUBLIC STREET TO PUBLIC STREET)[1] | 660 feet | 660 feet | 660 feet | 660 feet | 660 feet |
| MINIMUM BLOCK SIZE (PUBLIC STREET TO PUBLIC STREET) | 300 feet | 250 feet | 200 feet | 150 feet | 125 feet |
| MAXIMUM BLOCK PERIMETER[1] | 1,760 feet | 1,760 feet | 1,760 feet | 1,760 feet | 1,760 feet |
| MAXIMUM DISTANCE BETWEEN PEDESTRIAN/BICYCLE ACCESSWAYS[2] | 330 feet | 330 feet | 330 feet | 330 feet | 330 feet |

1. Existing standard for the City of Pasco
2. Spacing is the maximum of public street to public street, public street to accessway, or accessway to accessway distance

## VEHICLE MOBILITY TARGETS

Mobility targets are used in long-range planning and development review to identify deficiencies on the transportation network and can be used to identify needed improvements as growth occurs. Two common methods used to gauge traffic operations for motor vehicles are volume to capacity (v/c) ratios and level of service (LOS):

- Volume-to-capacity (v/c) ratio: A v/c ratio is a decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. The ratio is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance.
- Level of service (LOS): LOS is a “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay is excessive, and demand exceeds capacity, typically resulting in long queues and delays.

Mobility targets are adopted by the City of Pasco in their comprehensive plan. The City of Pasco currently uses a Level of Service (LOS) standard which is based on a Highway Capacity Manual calculation of delay that varies between signalized and unsignalized intersections. The current mobility targets, which apply to the daily peak hour, are summarized below in Table 13. The City requires a lower level of service for arterial and collector roadways where higher traffic leads to

higher delays. The arterial and collector standards are consistent with the mobility targets applied by BFCG and WSDOT.

**TABLE 13: EXISTING MOBILITY TARGETS**

| FUNCTIONAL CLASSIFIATION | EXISTING MOBILITY TARGET |
|---|---|
| LOCAL STREETS | LOS C |
| ARTERIALS AND COLLECTORS | LOS D |
| WSDOT FACILITIES | LOS D |

The City of Pasco should consider expanding their current mobility targets to include a volume-to-capacity (v/c) standard. Having both a LOS (delay-based) and v/c (congestion-based) standard can be helpful in situations where one metric may not be enough, such as an all-way stop where one approach is over capacity but overall intersection delay meets standards. The City of Pasco should also introduce mobility targets which depend on the intersection control which can better capture acceptable levels of performance across different intersection control types. Table 14, below, summarizes recommended changes to Pasco's mobility targets.

**TABLE 14: RECOMMENDED MOBILITY TARGETS**

| INTERSECTION TYPE | PROPOSED MOBILITY TARGET | REPORTING MEASURE |
|---|---|---|
| SIGNALIZED | LOS D and v/c ≤0.90 | Intersection |
| ALL-WAY STOP OR ROUNDABOUTS | LOS D and v/c ≤0.90 | Worst Approach |
| TWO-WAY STOP [1] | LOS E and v/c ≤0.95 | Worst Major Approach/Worst Minor Approach |
| WSDOT INTERSECTIONS | LOS D | Intersection or Worst Approach depending on control type |

1. Applies to approaches that serve more than 20 vehicles; there is no standard for approaches serving lower volumes

## DEMAND MANAGEMENT POLICIES

Pasco experiences peak congestion due to single-occupant trips during peak demand times. Transportation Demand Management (TDM) aims to remove single occupant motor vehicle trips from the roadway network during peak travel demand periods which could provide one avenue for reducing pressure on key facilities. Changing a users' travel behavior and providing alternative choices will help accommodate the expected growth in travel demand identified for Pasco.

Generally, TDM focuses on reducing vehicle miles traveled for large employers by promoting active and shared modes of travel. Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can affect the number of vehicle miles traveled to/from that area. In order for TDM measures to be effective, strategies should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc.

Effective TDM measures include parking strategies (limiting or increasing supply in strategic locations), improved services for alternative modes of travel, and market-based incentives to encourage travel behavior changes. However, TDM includes a wide variety of actions that are specifically tailored to the individual needs of an area. Effective TDM strategies include:

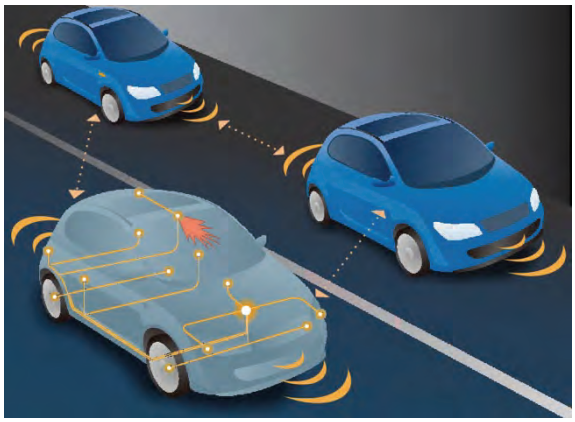
- Supporting alternative vehicle types by identifying potential electric vehicle plug-in stations and developing implementing code provisions.
- Encouraging/supporting rideshare/vanpool to major employers in Benton or Franklin County and Kennewick or Richland (e.g. Hanford Nuclear Site) for employees living in Pasco.
- Establishing site development standards that require pedestrian and bicycle access through sites and connections to adjacent sites and transportation facilities, to the extent the development impacts existing access.
- Improving amenities and access for transit stops. Actions could include instituting site design requirements allowing redevelopment of parking areas for transit amenities; requiring safe and direct pedestrian connections to transit and permitting transit-supportive uses outright in commercial and institutional zones.
- Improving street connectivity to support direct connections between residential areas and activity centers.
- Investing in pedestrian/bicycle facilities.

Opportunities to expand transportation demand management and other measures in Pasco include developing implementing requirements for long-term bicycle parking for places of employment above a certain size, park and ride facilities, major transit stops, and multi-family residential developments. Other land uses, especially activity generators, should be required to provide short-term bike parking and are encouraged to implement the long-term options. Long-term bicycle parking options include:

- Individual lockers for one or two bicycles
- Racks in an enclosed, lockable room
- Racks in an area that is monitored by security cameras or guards (within 100 feet)
- Racks or lockers in an area always visible to employees

## ELECTRIC AND AUTONOMOUS VEHICLES

Emerging transportation technologies will shape roads, communities, and daily lives for generations. Vehicles are becoming more connected, automated, shared, and electric. While the timing of when these advances will occur is uncertain, they will have significant impacts on how a community plans, designs, builds, and uses the transportation system. Below are some important emerging transportation technology terms and definitions that provide the basis for the impacts, policies and action items discussed in the following sections.



**Connected vehicles** (CVs) will enable communications between vehicles, infrastructure, and other road users. This means that vehicles will be able to assist human drivers and prevent crashes while making the system operate more smoothly.

**Automated vehicles** (AVs) will, to varying degrees, take over driving functions and allow travelers to focus their attention on other matters. Vehicles with combined automated functions like lane keeping and adaptive cruise control exist today. In the future, more sophisticated sensing and programming technology will allow vehicles to operate with little to no operator oversight.

**Shared vehicles** (SVs) allow ride-hailing companies to offer customers access to vehicles through cell phone applications. Ride-hailing applications give on-demand transportation with comparable convenience to car ownership without the hassle of maintenance and parking. Examples of shared vehicles include companies like Uber and Lyft.

**Electric Vehicles** (EVs) have been on the road for decades and are becoming more economically feasible as the production costs of batteries decline and vehicle fuel prices increase.

Many of these technologies will not be exclusive of the others and it is important to think of the host of implications that arise from the combination of them. These vehicles are referred to as connected, automated, shared, and electric (CASE) vehicles.

## IMPACTS OF CASE VEHICLES

### CONGESTION AND ROAD CAPACITY

There are several competing forces that will unfold as connected, automated, and shared vehicles are deployed. It is difficult to predict how these vehicles will influence congestion and road capacity.

- AVs will provide a more relaxing or productive ride experience and people may have less resistance to longer commutes.
- Shared AVs are projected to have lower fuel and operating costs, making them less

expensive on a per mile basis than private vehicle ownership. This may increase demand for auto-based travel in the future.

- CV technology will allow vehicles to operate safely with closer following distance, less unnecessary braking, and better coordinated traffic control. This will increase road capacity in the long run when CVs and AVs comprise most of the public and private fleet of vehicles.
- In the near term, since AVs make up a fraction of the fleet of vehicles, road capacity could decrease as AVs will operate more slowly and cautiously than regular vehicles.
- A new class of traffic – zero-occupant vehicles – will increase traffic congestion. These could include AVs making deliveries or shared AVs circulating around the city and traveling to their next rider.
- Roadways may need to be redesigned or better maintained to accommodate the needs of automated driving systems. For instance, striping may need to be wider and more consistently maintained to ensure the vehicle's sensors can recognize it.

These points raise questions about the degree to which CASE vehicles will impact road capacity and congestion. The development and use of the technologies should be monitored closely.

### TRANSIT

AVs could become cost competitive with transit and reduce transit ridership as riders prefer a more convenient alternative. However, transit will remain the most efficient way to move high volumes of people through constricted urban environments. AVs will not eliminate congestion and as discussed above, could exacerbate it – especially in the early phases of AV adoption. In addition, shared AVs may not serve all sectors of a community so many will still require access to transit to meet their daily needs.

### PARKING

Because AVs will be able to park themselves, travelers will elect to get dropped off at their destination while their vehicle finds parking or its next passenger. Shared AVs will have an even greater impact on parking because parking next to the destination will no longer be a priority for the traveling public. This means that parking may be over-supplied in some areas and new opportunities to reconfigure land use will emerge. Outstanding questions related to parking include:

- How does vehicle ownership impact parking behavior?
- What portion of the AV fleet will be shared?
- How far out of the downtown area will AVs be able to park while remaining convenient and readily available?

### CURB SPACE

In addition to parking impacts, the ability to be dropped off at the destination will create more potential for conflicts in the right-of-way between vehicles that are dropping passengers off or picking them up, vehicles moving through traffic, and vehicles parked on the street. This issue is already occurring in many urban areas with ride-hailing companies, where popular destinations are experiencing significant double-parking issues.

AVs will also be used to deliver packages and food. This may mean that delivery vehicles need to be accommodated in new portions of the right-of-way. For instance, if the AV parks at the curb in a neighborhood and smaller robots are used to deliver packages from door to door, new conflicts will arise between vehicles, pedestrians, robots, and bicyclists.

### ELECTRIC VEHICLE CHARGING

To accommodate a future where electric vehicles are the majority of the vehicle fleet, additional charging infrastructure will be required. Cities, electric utilities, regions, and states will need to work together to create enough reliable electricity supply to fulfill the increased electrical demand.

## TRAFFIC IMPACT ANALYSIS (TIA) GUIDELINES

The City of Pasco's existing TIA guidelines were reviewed to identify areas of improvement to ensure a consistent development review process that accurately anticipates traffic impacts due to ongoing development. Currently, Pasco requires a TIA to be completed if 100 or more weekday peak hour trips are generated by the development, or due to existing traffic/roadway conditions, existing and anticipated traffic volumes, trip distribution, accident history, property zoning, truck traffic percentage, event-based traffic, expressed community concern, and other factors relating to complexity, and location of proposed development.

Their current guidelines also allow for two tiers of TIAs to be completed depending on the anticipated level of development. A Tier 1 TIA can be completed when fewer than 50 PM peak hour net new trips will be generated by the development depending on the context of the development location. Tier 1 TIAs document the anticipated trip generation and detail the proposed site plans for the development at a minimum. Tier 2 TIAs are required when a development is expected to generate 50 or more net new trips during the PM peak hour. These documents include all details required for a Tier 1 TIA plus a full traffic study to document traffic conditions with the new development. The existing TIA guidelines do not provide specific details on methodologies that must be used to evaluate transportation impacts (*e.g.* appropriate background growth rate, appropriate trip generation resources).

Recommended modifications to the TIA guidelines are summarized in the supplemental document "Pasco Guidelines for Transportation Impact Analysis," provided in the appendix. These guidelines incorporate most material previously included in Pasco's TIA guidelines, but include additional details on best practice for conducting TIAs. Clearly specifying these methods in the TIA guidelines will increase the uniformity of TIAs received by the City of Pasco and ensure consistent development review standards are applied. Key changes include:

- Reducing the trips generated threshold to trigger a Tier 2 TIA from 50 to 25 for either the AM or PM peak hours
- Adding a daily trip generation threshold to trigger a Tier 2 TIA of 300 trips
- Specifying that all TIAs must be prepared by a licensed professional engineer or under the direct supervision of a licensed professional engineer registered in the State of Washington
- Providing recommendations for standard analysis methodologies (*e.g.* standard background growth rate)
- Adding additional guidelines for appropriate content to be documented in each TIA

The following section presents the TIA guidelines for the City of Pasco.

# CITY OF PASCO

## GUIDELINES FOR TRANSPORTATION IMPACT ANALYSIS

**February 2021**

This document describes the city's required content for a Transportation Impact Analysis (TIA). In general terms, TIA applies to developments that are presumed to have a transportation impact. A traffic study shall, at a minimum, be a thorough review of the intermediate and long-range effects of the proposed development on the City's transportation system and may result in mitigation of those resulting impacts. This is not to be confused with a Traffic Impact Fee.

A professional engineer must prepare the TIA and must use appropriate data, methods, and standards as documented in the Pasco Guidelines for Transportation Impact Analysis.

## PURPOSE

The purpose of this section is to implement a process to apply conditions to land use proposals in order to minimize impacts on and protect transportation facilities.

In order to obtain sufficient and consistent information to assess a development's impact on the transportation system a TIA will be performed by the City of Pasco, and/or its agents, at the Developers expense. The City of Pasco requires two tiers (Tier 1 and Tier 2) of TIAs depending on the expected level of development. In order to perform an adequate TIA the following options are available to the developer, Once a direction is chosen by the developer and/or his/her representative. it cannot be changed. This is out of consideration for responsibilities and final cost for the developer:

- **The City and/or its agents perform the TIA, at the Developers expense, selecting the most efficient and cost-effective means and provide the analysis to the developer without further consideration.**
- **The Developer can perform the TIA utilizing their own licensed Traffic Engineer at the developer's expense and the City will perform a review, at the Developers sole expense, with any and all clarifications or modifications to the TIA resulting from the review being the Developers sole financial responsibility.**

The preparation of the TIA report is the responsibility of the landowner or applicant. Pasco assumes no liability for any costs or time delays (either direct or inconsequential) associated with the TIA report preparation and review. The applicant can choose any qualified professional engineer. All TIA reports shall be reviewed by the city Public Works Department and the Department of Community & Economic Development (referred to as "city" in this document). Studies that do not address these guidelines adequately shall be returned to the applicant for modification. It is the responsibility of the applicant to coordinate with local agencies and/or the Washington State Department of Transportation (WSDOT) for any potential impacts to county roadways or state highways.

## WHEN IS A TIER 1 ANALYSIS REQUIRED?

A Tier 1 TIA may be required to be submitted to the city with a land use application at the request of the city or if the proposal is expected to involve one (1) or more of the following:

1. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.
2. Projected increase in trip generation of less than 25 trips during both the AM or PM peak hour, or less than 300 daily trips.
3. No additional Tier 2 requirements are met.

## WHEN IS A TIER 2 ANALYSIS REQUIRED?

A Tier 2 TIA may be required to be submitted to the city with a land use application at the request of the city or if the proposal is expected to involve one (1) or more of the following:

1. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.
2. Projected increase in trip generation of 25 or more trips during either the AM or PM peak hour, or more than 300 daily trips.
3. Potential impacts to intersection operations.
4. Potential impacts to residential areas or local roadways, including any non-residential development that will generate traffic through a residential zone.
5. Potential impacts to pedestrian and bicycle routes, including, but not limited to school routes and multimodal roadway improvements identified in the Transportation System Master Plan (TSMP).
6. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.
7. A change in internal traffic patterns may cause safety concerns.
8. Projected increase of five trips by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) per day, or an increase in use of adjacent roadways by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) by 10 percent.
9. Potential event-based traffic that could impact adjacent intersections.
10. Expressed community concern.
11. Other factors as deemed appropriate by the Public Works Department or the Department of Community & Economic Development.

## PROCESS

A landowner or developer seeking to develop/redevelop property shall contact the city at the project's outset. The city will review existing transportation data to establish whether a Tier 1 or Tier 2 TIA is required. It is the responsibility of the applicant to provide enough detailed information for the city to make a determination. An applicant should have the following prepared, preferably in writing:

- **Type of uses within the development**
- **The size of the development**
- **The location of the development**
- **Proposed new accesses or roadways**
- **Estimated trip generation and source of data**
- **Proposed study area**

If the city cannot properly evaluate a proposed development's impacts without a more detailed study, a Tier 2 TIA will be required. Within a reasonable time following the initial contact, the city will establish whether a TIA is required. If the developer chooses to use the city to complete the TIA, the city will provide a project specific scope with an estimated cost to the applicant that includes all of the requirements in this guideline document. If the developer chooses to use its own traffic engineer, it must submit a project specific scope to the city that includes all of the requirements in this guideline document for review and approval before starting the TIA.

## TIER 1 REQUIREMENTS

The following sections detail the TIA requirements.

### TIA REQUIREMENTS

The following requirements shall be included in each Tier 1 TIA submitted to the city. Additional information specified by the city through scoping or through other project meetings shall also be included.

1. The TIA shall be prepared by or prepared under the direct supervision of a Registered Professional Engineer who shall sign and stamp the TIA.
2. Study Area: An inventory of the existing transportation facilities (pedestrian, bicycle, transit, and vehicle) for all roadways fronting the proposed development will be included. The surrounding land use context and allowable zoning must also be reviewed.
3. Trip Generation: The proposed trip generation should be based on similar land uses reported in the latest version of the ITE Trip Generation Manual and shall include calculations for removed trips, pass-by trips, internal trip capture, and diverted trips, if applicable.
4. Trip Distribution and Assignment: Estimated site generated traffic for the proposed project should be distributed and assigned to intersections of existing or proposed arterial and collector roadways within three miles of the site. A summary by intersection movement should be provided in tabular format, at a minimum. Trip distribution methods should be based on a reasonable assumption of local travel patterns and the locations of off-site origin/destination points within the site vicinity. An analysis of local traffic patterns and intersection turning movement counts can be used as long as the data has been gathered

within the previous 12 months and reflect typical traffic volumes. Counts collected during periods with significant and/or extended traffic disruptions (i.e., COVID-19 pandemic, natural disasters, or other special events as determined by city staff) cannot be applied without adjustments to account for the impact on traffic volumes with approval by city staff.

5. Site plan review: A site plan for the proposed development shall be submitted detailing proposed access locations and documentation that they meet spacing and sight distance requirements; site circulation for bicycles, pedestrians, and vehicles; and the proposed parking.

## TIER 2 REQUIREMENTS

The following sections detail the TIA requirements.

### TIA REQUIREMENTS

The following requirements shall be included in each Tier 2 TIA submitted to the city. Additional information specified by the city through scoping or through other project meetings shall also be included. All additional Tier 1 criteria not specified must be satisfied.

1. The TIA shall be prepared by or prepared under the direct supervision of a Registered Professional Engineer who shall sign and stamp the TIA.

2. Study Area: The TIA should include all roadways adjacent to and through the site (e.g., all roadways used to access the site), and any roadway with a functional classification of collector and above within a quarter-mile of the site. Study intersections will generally include site-access points, and intersections of two roadways with a functional classification of collector and above (i.e., Principal Arterial, Minor Arterial, Collector, or Neighborhood Collector) within three-miles of the site with an expected increase of 20 peak hour trips generated from the proposed project. The intersection closest to the site of any roadway with a functional classification of collector and above with a Principal Arterial should also be included (if not already required), regardless of the distance or generated trip thresholds identified above. An inventory of the existing transportation facilities (pedestrian, bicycle, transit, and vehicle) for all study roadways will be included. The surrounding land use context and allowable zoning will also be reviewed.

3. The TIA should include the following horizon years:
   - **Existing Conditions**
   - **No Build Conditions. The conditions in the year in which the proposed project will be completed and occupied, but without the expected traffic from the proposed project. This shall include trips generated at study intersections from approved, but not fully occupied developments at the time traffic count data was collected.**
   - **Build Conditions. The no build condition, plus traffic from the proposed project**

**assuming full build-out and occupancy. This shall also include phased years of completion resulting from the development, if applicable.**

- **Mitigation Conditions (if necessary). The build conditions plus off-site (e.g. proportionate share of infrastructure improvements) and on-site (e.g. traffic management plan, parking management plan) improvements that mitigate undesirable impacts from the development.**

4. Analysis Periods: The TIA should analyze the weekday (Tuesday through Thursday) AM and/or PM peak periods in which the proposed project is expected to generate 25 or more trips. Additional periods may be required depending upon the proposed project and/or surrounding land uses. Turning movement counts during the weekday AM peak period should typically be between 7:00 AM and 9:00 AM, and 4:00 PM and 6:00 pm during the weekday PM peak period. Historical turning movement counts may be used if the data is not more than 12 months old. Historical counts shall be factored accordingly to meet the existing traffic conditions.
5. Trip Generation: The proposed trip generation should be based on similar land uses reported in the latest version of the ITE Trip Generation Manual and shall include calculations for removed trips, pass-by trips, internal trip capture, and diverted trips, if applicable.
6. Trip Distribution and Assignment: Estimated site generated traffic for the proposed project should be distributed and assigned to intersections of existing or proposed arterial and collector roadways within three miles of the site. Trip distribution methods should be based on a reasonable assumption of local travel patterns and the locations of off-site origin/destination points within the site vicinity. An analysis of local traffic patterns and intersection turning movement counts can be used as long as the data has been gathered within the previous 12 months.
7. Background Traffic Growth Rate: A 1 percent compound annual growth rate shall be applied to all movements at study intersections to develop background traffic growth for the horizon years. An applicant may propose an alternative background growth rate with appropriate documentation and references.
8. In-Process Developments: The TIA should add the trips generated at study intersections from approved, but not fully occupied developments at the time traffic count data was collected, to the future horizon years. The applicant should request the approved developments and their occupancy status from the city. Should the TIA not be submitted to the city within 12 months of the scoping summary, additional approved developments could be required. If multiple development applications are received by the city, but not yet approved, for projects in the same area, the city may require a sensitivity test for each subsequent applicant to ensure the adequacy of proposed improvements in the event all developments are approved. The need for any sensitivity tests will be determined based on the order of applications received and specified in the study scope.
9. Safety Analysis: crash patterns for the past five years will be reviewed for all study roadways. Crash trends and any specific recommendations to improve existing safety deficiencies will also be discussed.

## TIA CONTENT

The following content should typically be included in each Tier 2 TIA submitted to the city. Additional information specified by the city in the scoping summary or through other project meetings shall also be included.

### Section 1: Introduction

- **Proposed project summary, including site location, zoning, project size, and project scope. This should include a figure showing the project site and vicinity map, including any roadway with a functional classification of collector and above within a quarter-mile of the site and all study intersections.**

### Section 2: Existing Conditions

- **Study area description, including a figure showing the project site, key roadways, and study intersections.**
- **Existing site conditions, current zoning, and adjacent land uses.**
- **Roadway characteristics of important transportation facilities and modal opportunities located within the study area, including roadway functional classifications, roadway cross-section, roadway condition, posted speeds, bicycle and pedestrian facilities, and transit facilities.**
- **Existing lane configurations and traffic control devices at the study area intersections.**
- **Existing traffic volumes and operational analysis of the study area roadways and intersections. This should include a figure of existing peak hour turn movement volumes.**
- **Roadway and intersection crash history analysis (most recent five years). This should include a discussion on crash trends, if any, and recommendations for safety improvements, if any.**

### Section 3: Assumptions and Methodologies

- **Project description, including site location, zoning, project size, and project scope, and map showing the proposed site, building footprint, access driveways, active transportation connections, parking, and transit facilities.**
- **Transportation standards (e.g., roadway and access spacing standards, level-of-service standards). These can be found in the Pasco Transportation System Master Plan.**
- **Site access for vehicles, pedestrians, bicyclists, and transit riders, including access spacing and site distance review at site driveways, and summary of roadway grades and other vertical or horizontal obstructions.**
- **Site frontage improvements, including provisions for pedestrians and bicyclists.**

- **Trip generation summary. This section should also include a summary of the expected vehicles exceeding 26,000-pound gross vehicle weight (13 tons) that the proposed project will generate.**
- **Trip distribution and assignment assumptions, including a figure showing the trip distribution percentages. A summary of the distributed trips at intersections of existing or proposed arterial and collector roadways within three miles of the site should be provided in tabular format by intersection movement.**
- **Background traffic growth.**
- **In-process developments, if applicable.**
- **Funded transportation improvements in the study area, if applicable, including improvements found in the Pasco Transportation System Plan and the Ben Franklin Transit Development Plan.**
- **Future analysis years and scenarios (No Build Conditions, Build Conditions, Mitigation Conditions, and Phased Years of Completion, if necessary).**
- **Future traffic volumes. This should include a figure showing the future traffic volumes broken down by existing traffic volumes, background traffic growth, in-process trip growth (if applicable), project traffic growth, and total traffic volumes.**

### Section 4: Future Conditions

- **Background traffic volumes and operational analysis.**
- **Full buildout traffic volumes and intersection operational analysis. This should also include a summary of roadway segment conditions with full buildout traffic volumes (e.g., roadway volumes, roadway condition and width).**
- **Signal and turn lane warrant analysis at site access points, if applicable.**
- **Intersection and site-access driveway queuing analysis.**
- **Site access considerations for pedestrians, bicyclists, and transit riders**
- **Impacts of non-residential traffic through a residential zone.**
- **Impacts from vehicles exceeding 26,000-pound gross vehicle weight (13 tons), including turning movements.**
- **Site circulation and parking.**

### Section 5: Recommendations

- **Motor vehicle improvements, including proposed cross-section for site frontage improvements and intersection improvements (if necessary).**
- **Site access recommendations for all transportation modes, including summary of needed**

deviations to the code, cross-over easements and driveway consolidation, and proposed driveways widths.

- Pedestrian, bicycle, and transit improvements, including provisions for pedestrians and bicyclists along the site frontage, and internally to the site. Recommendations must also consider future transit routes or stops and access to these facilities from the site.

### Appendix

- Traffic count data.
- Crash analysis data.
- Traffic operational analysis worksheets, with detail to review capacity calculations.
- Signal, left-turn, and right-turn lane warrant evaluation calculations.
- Other analysis summary sheets, such as queuing.