

Bremerton2044

Attachment C. Future Traffic Conditions Analysis

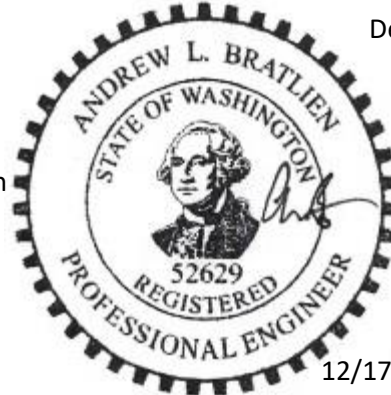


December 17, 2024

TO: Vicki Grover, PE
City of Bremerton Engineering Division

FROM: Andrew L. Bratlien, PE, PTOE
Daniel B. Hodun, EIT

SUBJECT: Future Conditions Analysis



12/17/2024

This memorandum describes the methods, assumptions, and findings of the 2030 and 2044 intersection Level of Service (LOS) analyses developed in support of the Transportation Element.

LEVEL OF SERVICE BACKGROUND

Level of Service Definition

Level of service (LOS) is a qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown flow with high delays. In urban street networks, intersections typically constitute mobility chokepoints and are the focus of LOS analyses.

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

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

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

Table 1. Level of Service Thresholds

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

Level of Service Policy

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

ANALYSIS METHODS AND ASSUMPTIONS

Analysis Scenarios

This analysis considered AM and PM peak hour intersection operations in two forecasting years: 2030 and 2044. The 2030 Pipeline scenario assumes construction of all development in the City of Bremerton permitting pipeline as of January 2024, confirmed by City of Bremerton staff. The six-year forecasting horizon used in this scenario is consistent with Washington State Growth Management Act (GMA) requirements for transportation concurrency management.

The 2044 Long-Range scenario utilized long-range development forecasts confirmed by City of Bremerton staff in March 2024. These forecasts are consistent with the Land Use Element of the ongoing City of Bremerton Comprehensive Plan update and therefore maintain consistency with the goals and policies of the Comprehensive Plan.

Study Area

This analysis considered 60 intersections of collector and arterial streets in and near Bremerton, including 23 City of Bremerton intersections, 32 intersections on WSDOT facilities in the City of Bremerton, and five intersections on key facilities outside city limits which impact mobility into, out of, and within Bremerton. The study intersections are consistent with the sites analyzed in the 2023 intersection LOS analysis, as described in the Transportation Solutions memorandum “2023 Intersection Level of Service Analysis,” dated December 17, 2024.

Intersection data collection sites were selected based on roadway functional classification, control type, and location. Sites included all signalized intersections and roundabouts within city limits. Data collection also included all intersections of roadways with functional classification Principal Arterial and Minor Arterial. Finally, data collection sites included other intersections which serve high demand or play an important role in vehicle mobility and route choice in Bremerton, based on engineering judgment.

Baseline Transportation Improvement Projects

This analysis assumed construction of two transportation improvement projects in all 2030 and 2044 scenarios:

- Naval Avenue - 1st to 15th Bicycle and Pedestrian Enhancements: This project will rechannelize Naval Avenue from 1st Street to 15th Street to provide two through lanes and a center turn lane in addition to safe active transportation facilities.
- 6th Street Active Transportation Improvements: This project will rechannelize 6th Street from 11th Street to Washington Avenue to provide two through lanes and a center turn lane in addition to safe active transportation facilities.

The baseline transportation improvement projects are described in greater detail on the City of Bremerton website^{1,2}.

Travel Demand Model

Traffic volume forecasts were developed using the Bremerton travel demand model, which was updated in 2023 to reflect the latest development inventory, driver behavior, trip generation rates, and modeling procedures. The travel demand model was validated using real-world traffic counts reflects a correlation coefficient of 0.98 in the AM peak hour and 0.96 in the PM peak hours of travel. This represents the best available tool for travel demand forecasting in and near Bremerton. The methods and assumptions of the travel demand model are described in the Transportation Solutions memorandum “Transportation Modeling Methodology,” dated November 10, 2023.

Level of Service Analysis Methodology

Signalized and stop-controlled intersection operations were analyzed in Synchro 11 software using *Highway Capacity Manual 6th Edition* methodologies. Roundabout intersections were analyzed in Sidra Intersection 9.1 software using the Sidra capacity model and WSDOT Sidra Policy Settings. Intersection LOS analysis methods and assumptions are described in greater detail in the Transportation Solutions memorandum “2023 Intersection Level of Service Analysis,” dated May 20, 2024.

NAVAL BASE KITSAP-BREMERTON GATE OPERATIONS

Naval Base Kitsap-Bremerton (NBK-BR) is located on the north side of the Sinclair Inlet within the City of Bremerton. It includes five vehicle/pedestrian gates (Missouri, Charleston, Montgomery, Naval, and Main) and two pedestrian-only gates (State and Burwell) in the vicinity of the study area intersections.

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

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

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

¹ <https://www.bremertonwa.gov/1167/Naval-Ave-Bicycle-Pedestrian-Enhancement>

² <https://www.bremertonwa.gov/1342/6th-Street-Active-Transportation-Improve>

TRAVEL DEMAND FORECASTING

Development Forecasts

Pipeline development was verified by City staff and included projects which were permitted or under construction as of January 2024. Pipeline projects consist of a total of 1,220 new dwelling units (DU) and 223,000 square feet (sf) of commercial, industrial, and institutional development citywide. Pipeline development is expected to generate a total of 501 new vehicle trips during the AM peak hour and 786 new vehicle trips during the PM peak hour of travel.

Long-range 2044 development forecasts were provided by City staff and included 9,027 new dwelling units and 15,757 new employees citywide. Long-range growth is anticipated to generate 9,077 new vehicle trips during the AM peak hour and 12,512 new vehicle trips during the PM peak hour. The 2044 development forecast is summarized in **Table 2**.

Table 2. 2044 Travel Demand Growth

Scenario	AM Peak Hour		PM Peak Hour	
	Trip Ends	Growth ¹	Trip Ends	Growth ¹
Existing (2023)	20,147	-	30,606	-
Pipeline (2030)	20,648	+2.5%	31,392	+2.6%
Long-Range (2044)	29,224	+45.1%	43,118	+40.9%

¹Vehicle trip growth relative to 2023

Traffic Volume Forecasts

Traffic volume forecasts were calculated by entering development forecasts to the Bremerton travel demand model. AM peak hour and PM peak hour intersection volume forecasts for each study intersection are summarized in **Table 3**.

Table 3. Peak Hour Intersection Volume Forecasts

ID	Name	AM Peak Hour Volume (vph)			PM Peak Hour Volume (vph)		
		2023	2030	2044	2023	2030	2044
<i>City of Bremerton Intersections</i>							
13	6 th Street & N Montgomery Ave	891	+69	+172	1,531	+94	+239
14	6 th Street & Naval Ave	1,168	+121	+204	1,912	+230	+171
16	6 th Street & Veneta Ave	812	+0	+6	1,445	+31	+128
17	6 th Street & Warren Ave	1,666	+175	+440	2,353	+77	+385
18	6 th Street & Park Ave	603	+61	+364	1,189	+110	+479
19	6 th Street & Pacific Ave	397	+68	+345	892	+72	+365
20	6 th Street & Washington Ave	574	+173	+279	1,328	+220	+314
30	11 th Street & N Callow Ave	1,391	+129	+312	2,246	+314	+699
31	11 th Street & Naval Ave	1,395	+226	+367	2,101	+324	+767
32	11 th Street & High Ave	1,435	+147	+315	2,059	+234	+624
33	11 th Street & Park Ave	594	+73	+235	1,162	+200	+490
34	Washington Ave & Manette Bridge	753	+207	+356	1,694	+464	+570

ID	Name	AM Peak Hour Volume (vph)			PM Peak Hour Volume (vph)		
		2023	2030	2044	2023	2030	2044
43	Burwell St & Washington Ave	420	+56	+174	809	+101	+258
46	Werner Rd & Union Ave/Auto Center Blvd	662	+13	+200	1,577	+116	+245
47	Werner/Loxie Eagans & Auto Center Blvd	1,151	+22	+190	1,979	+11	+103
60	Perry Ave & Sheridan Rd	535	+13	+52	793	+21	+59
67	Perry Ave & 11 th Street	211	+48	+98	485	+95	+175
70	Wheaton Way & Lebo Blvd/ Cherry Ave	302	+47	+346	681	+58	+320
74	Manette Bridge/ Wheaton Way & Harkins St	720	+156	+305	1,414	+217	+400
85	Lebo Blvd & Sheridan Rd	306	+3	+62	700	+40	+124
88	11 th Street & Pacific Ave	463	+94	+283	894	+240	+416
137	Wheaton Way & Broad St	1,947	+103	+315	3,235	+145	+378
307	Naval Ave & 15 th Street	314	+27	+37	494	+40	+91
<i>WSDOT Intersections in City Limits</i>							
2	Kitsap Way (SR 310) & SR 3 SB Off-Ramp	1,526	+43	+291	3,103	+436	+1,019
3	Kitsap Way (SR 310) & SR 3 NB Ramp	2,011	+95	+315	3,280	+397	+965
4	Kitsap Way (SR 310) & Shorewood Dr	1,834	+88	+297	3,103	+223	+662
5	Kitsap Way (SR 310) & Ostrich Bay Way	1,841	+81	+269	3,024	+262	+761
6	Kitsap Way (SR 310) & Oyster Bay Ave	1,875	+80	+258	2,991	+250	+751
7	Kitsap Way (SR 310) & National Ave	2,186	+76	+289	3,491	+247	+726
8	Kitsap Way (SR 310) & Marine Dr	2,285	+69	+299	3,635	+211	+684
9	Kitsap Way (SR 310) & Corbett Dr	1,996	+83	+280	3,185	+319	+689
10	Kitsap Way (SR 310) & 11 th St	1,316	+548	+713	2,917	+747	+1,089
11	Kitsap Way (SR 310) & Wycoff Ave	859	+15	+75	1,500	+40	+221
12	Kitsap Way (SR 310)/6 th St & Callow Ave	1,177	+41	+145	1,921	+180	+295
21	Warren Ave (SR 310) & Burwell St (SR 304)	1,456	+185	+257	1,737	+121	+447
22	Warren Ave (SR 303) & 11 th Street	2,586	+145	+416	3,684	+274	+801
23	Warren Ave (SR 303) & 13 th Street	2,467	+48	+414	3,403	+130	+489
24	Warren Ave (SR 303) & 16 th Street	2,628	+39	+401	3,520	+96	+481
25	Wheaton Way (SR 303) & Sheridan Rd	2,445	+106	+493	3,643	+135	+611
26	Wheaton Way (SR 303) & Sylvan Way	2,300	+107	+409	3,600	+123	+457
27	Wheaton Way (SR 303) & Hollis Street	1,864	+103	+304	3,172	+149	+375
28	Wheaton Way (SR 303) & Riddell Rd	2,213	+121	+399	3,734	+225	+598
35	Burwell St (SR 304) & N Callow Ave	1,908	+84	+346	2,420	+105	+417
36	Burwell St (SR 304) & N Montgomery Ave	1,574	+169	+356	1,983	+257	+674
37	Burwell St (SR 304) & Naval Ave	1,861	+331	+385	2,452	+478	+799
38	Burwell St (SR 304) & State Ave	1,350	+166	+213	1,635	+136	+592
40	Burwell St (SR 304) & Park Ave	602	+37	+93	1,088	+5	+296
42	Burwell St (SR 304) & Pacific Ave	718	+81	+204	946	+71	+376

ID	Name	AM Peak Hour Volume (vph)			PM Peak Hour Volume (vph)		
		2023	2030	2044	2023	2030	2044
44	Charleston Blvd (SR 304) & Farragut Ave	1,973	+58	+255	2,913	+90	+613
76	SR 303 SB Ramp & Callahan Dr	150	+0	+62	191	+1	+114
93	SR 3 NB Ramps & Austin Dr	788	+28	+134	874	+27	+111
94	SR 3 SB Ramps & Austin Dr	486	+31	+181	986	+95	+56
104	Loxie Eagans Blvd & SR 3 SB Ramps	1,367	+22	+262	2,020	+22	+128
105	Loxie Eagans Blvd & SR 3 NB ramps	1,439	+37	+226	2,168	+99	+306
216	SR 3 & Imperial Way	1,215	+138	+1,091	1,601	+132	+1,232
<i>Key Intersections Outside City Limits</i>							
45	Charleston Blvd (SR 304) & Charleston Beach	2,106	+59	+217	2,960	+41	+495
48	Loxie Eagans Blvd & National Ave	1,034	+34	+148	1,813	+67	+266
49	SR 3 SB & Belfair Valley/Sherman Heights	220	+129	+170	1,054	+27	+97
202	SR 16 Spur & SR 3	1,864	+373	+1,391	2,419	+731	+1,410
328	SR 3 & Airport Rd	1,318	+144	+1,460	1,593	+156	+1,445

Segment Capacity Analysis

2044 travel demand forecasts were compared to street segment capacity calculated by the travel demand model to calculate the volume-to-capacity (v/c) ratio for each collector and arterial street segment in Bremerton. Vehicle mobility in an urban transportation network is typically constrained at the intersection level; however, street segment v/c can be a helpful visual method of identifying segments which are more likely to operate with intersection operations deficiencies. Maps of 2044 AM and PM peak hour street segment v/c ratios are included in Attachment 1.

INTERSECTION LOS RESULTS

Intersection LOS results for all study intersections are summarized in **Table 4**. Intersections with existing LOS deficiencies are highlighted. Full intersection capacity reports are provided in Attachment 1.

Table 4. Intersection LOS at Functionally Classified Intersections

ID	Name	2023 Control ¹	LOS Std ²	AM Peak Hour LOS (Delay) ³			PM Peak Hour LOS (Delay) ³		
				2023	2030	2044	2023	2030	2044
<i>City of Bremerton Intersections</i>									
13	6 th Street & N Montgomery Ave	Signal	E	A (2)	A (3)	A (3)	A (5)	A (8)	B (13)
14	6 th Street & Naval Ave	Signal	E	B (13)	B (17)	B (18)	B (18)	D (46)	D (43)
16	6 th Street & Veneta Ave	Signal	E	A (5)	A (6)	A (6)	A (7)	B (12)	B (13)
18	6 th Street & Park Ave	Signal	E	A (7)	A (7)	A (9)	B (14)	B (18)	D (48)
19	6 th Street & Pacific Ave	AWSC	E	A (9)	A (9)	B (12)	B (12)	B (13)	C (20)
20	6 th Street & Washington Ave	Signal	E	A (7)	A (8)	A (9)	C (24)	C (23)	C (24)
30	11 th Street & N Callow Ave	Signal	E	B (11)	B (11)	B (10)	B (14)	B (14)	B (16)

ID	Name	2023 Control ¹	LOS Std ²	AM Peak Hour LOS (Delay) ³			PM Peak Hour LOS (Delay) ³		
				2023	2030	2044	2023	2030	2044
31	11 th Street & Naval Ave	Signal	E	B (12)	B (19)	B (19)	B (13)	C (29)	C (35)
32	11 th Street & High Ave	Signal	E	B (18)	B (18)	B (19)	A (6)	B (17)	B (16)
33	11 th Street & Park Ave	Signal	E	A (9)	A (10)	B (10)	B (18)	C (20)	C (30)
34	Washington Ave & Manette Bridge	Signal ⁵	E	B (18)	A (6)	A (6)	E (62)	B (14)	B (20)
43	Burwell St & Washington Ave	Signal	E	A (7)	A (8)	A (8)	B (11)	B (11)	B (13)
46	Werner Rd & Union Ave/Auto Center	Signal	E	B (11)	B (11)	B (12)	D (36)	D (48)	D (44)
47	Werner/Loxie Eagans & Auto Center	Signal	E	A (9)	A (9)	A (9)	B (14)	B (14)	B (14)
60	Perry Ave & Sheridan Rd	TWSC	E	B (14)	B (14)	C (15)	C (18)	C (19)	C (20)
67	Perry Ave & 11 th Street	AWSC	E	A (8)	A (8)	A (8)	A (9)	A (10)	B (11)
70	Wheaton Way & Lebo Blvd/ Cherry Ave	AWSC	E	A (9)	A (9)	B (12)	B (11)	B (11)	B (14)
74	Manette Bridge/ Wheaton Way & Harkins St	RAB	E	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)
85	Lebo Blvd & Sheridan Rd	TWSC	E	B (10)	B (10)	B (10)	B (13)	B (13)	B (13)
88	11 th Street & Pacific Ave	AWSC	E	A (10)	B (10)	B (12)	B (13)	C (21)	E (39)
307	Naval Ave & 15 th Street	Signal	D	A (6)	A (6)	A (6)	A (6)	A (6)	A (6)
<i>WSDOT Intersections in City Limits</i>									
2	Kitsap Way (SR 310) & SR 3 SB Off-Ramp	Signal	D	C (35)	C (35)	D (39)	D (44)	D (49)	F (86)
3	Kitsap Way (SR 310) & SR 3 NB Ramp	Signal	D	B (17)	B (17)	B (18)	B (18)	C (23)	D (36)
4	Kitsap Way (SR 310) & Shorewood Dr	Signal	D	B (17)	B (17)	B (16)	B (16)	B (19)	B (14)
5	Kitsap Way (SR 310) & Ostrich Bay Ave	Signal	D	B (16)	B (15)	B (14)	C (24)	A (9)	B (16)
6	Kitsap Way (SR 310) & Oyster Bay Ave	Signal	D	A (4)	A (4)	A (4)	A (5)	A (5)	A (6)
7	Kitsap Way (SR 310) & National Ave	Signal	D	C (21)	C (21)	C (23)	C (30)	C (32)	D (40)
8	Kitsap Way (SR 310) & Marine Dr	Signal	D	D (45)	D (44)	E (62)	E (69)	D (53)	E (72)
9	Kitsap Way (SR 310) & Corbett Dr	TWSC	D	C (18)	D (27)	F (262)	C (20)	F (183)	F (>300)
10	Kitsap Way (SR 310) & 11 th St	Signal	D	B (14)	B (19)	B (15)	B (19)	C (20)	C (23)
11	Kitsap Way (SR 310) & Wycoff Ave	Signal	D	A (6)	A (6)	A (5)	A (5)	A (6)	A (10)
12	Kitsap Way (SR 310)/6 th St & Callow Ave	Signal	D	B (16)	B (16)	B (16)	B (19)	C (32)	C (22)
17	Warren Ave (SR 303) & 6 th Street	Signal	E	B (18)	B (19)	C (22)	C (30)	D (37)	D (40)
21	Warren Ave (SR 303) & Burwell St (SR 304)	Signal	D	C (34)	D (35)	D (41)	D (45)	E (56)	F (82)

ID	Name	2023 Control ¹	LOS Std ²	AM Peak Hour LOS (Delay) ³			PM Peak Hour LOS (Delay) ³		
				2023	2030	2044	2023	2030	2044
22	Warren Ave (SR 303) & 11 th Street	Signal	E*	C (25)	C (25)	C (31)	E (70)	D (54)	E (59)
23	Warren Ave (SR 303) & 13 th Street	Signal	E*	B (19)	B (20)	C (22)	A (5)	A (6)	A (7)
24	Warren Ave (SR 303) & 16 th Street	Signal	E*	A (8)	A (8)	A (9)	A (8)	A (7)	A (8)
25	Wheaton Way (SR 303) & Sheridan Rd	Signal	E*	D (52)	D (51)	D (46)	E (58)	E (63)	F (87)
26	Wheaton Way (SR 303) & Sylvan Way	Signal	E*	C (21)	C (20)	C (21)	C (29)	C (28)	C (30)
27	Wheaton Way (SR 303) & Hollis Street	Signal	E*	A (2)	A (2)	A (2)	A (7)	A (7)	A (8)
28	Wheaton Way (SR 303) & Riddell Rd	Signal	E*	C (27)	C (28)	C (29)	D (47)	D (48)	E (60)
35	Burwell St (SR 304) & N Callow Ave	Signal	D	D (44)	C (33)	C (31)	D (35)	C (34)	C (32)
36	Burwell St (SR 304) & N Montgomery Ave	Signal	D	A (5)	A (5)	A (5)	A (5)	A (6)	B (10)
37	Burwell St (SR 304) & Naval Ave	Signal	D	B (20)	B (20)	C (20)	C (29)	D (38)	D (52)
38	Burwell St (SR 304) & State Ave	Signal	D	A (6)	A (6)	A (8)	A (9)	A (10)	B (19)
40	Burwell St (SR 304) & Park Ave	Signal	D	A (4)	A (4)	A (5)	A (6)	A (6)	A (7)
42	Burwell St (SR 304) & Pacific Ave	Signal	D	A (8)	A (8)	A (9)	A (8)	A (9)	B (11)
44	Charleston Blvd (SR 304) & Farragut Ave	Signal	D	B (17)	B (17)	B (18)	C (25)	C (27)	C (33)
76	SR 303 SB Ramp & Callahan Dr	TWSC	E	A (9)	A (9)	A (9)	A (9)	A (9)	A (9)
93	SR 3 NB Ramps & Austin Dr	TWSC	D	B (11)	B (11)	B (13)	B (12)	B (12)	C (16)
94	SR 3 SB Ramps & Austin Dr	TWSC	D	C (17)	C (17)	C (23)	D (26)	D (30)	D (28)
104	Loxie Eagans Blvd & SR 3 SB Ramps	TWSC	D	F (77)	F (109)	F (>300)	F (>300)	F (>300)	F (>300)
105	Loxie Eagans Blvd & SR 3 NB ramps	Signal	D	A (8)	A (9)	A (10)	B (12)	B (12)	B (14)
137	Wheaton Way (SR 303) & Broad St	Signal	E	A (6)	A (6)	A (5)	B (10)	B (11)	B (11)
216	SR 3 & Imperial Way	Signal	D	B (11)	B (18)	E (65)	E (74)	C (31)	E (75)
<i>Key Intersections Outside City Limits</i>									
45	Charleston Blvd (SR 304) & Charleston Beach	Signal	D	A (9)	A (10)	A (10)	C (22)	C (22)	C (24)
48	Loxie Eagans Blvd & National Ave	Signal	*4	C (23)	C (24)	C (29)	E (77)	E (80)	F (92)
49	SR 3 SB & Belfair Valley/Sherman Heights	AWSC	D	A (8)	A (8)	A (8)	E (38)	F (66)	F (61)
202	SR 3 & Sam Christopherson Ave	Signal	D	D (40)	D (49)	F (191)	E (66)	F (>300)	F (>300)
328	SR 3 & Airport Way	RAB	E	A (6)	A (6)	F (97)	A (9)	A (6)	F (171)

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

¹AWSC = all-way stop control; RAB = roundabout; Signal = signal control; TWSC = minor-approach stop control

²Minimum intersection Level of Service standard

ID	Name	2023 Control ¹	LOS Std ²	AM Peak Hour LOS (Delay) ³			PM Peak Hour LOS (Delay) ³		
				2023	2030	2044	2023	2030	2044

³Intersection Level of Service and delay. For signalized, all-way stop, and roundabout intersections, intersection average delay is reported. For two-way stop-control intersections, delay is reported for the worst (highest-delay) movement.

⁴Kitsap County has not adopted a minimum intersection LOS standard

⁵Washington Ave & Manette Bridge roundabout was analyzed as a signal in 2023 and as a roundabout in 2030 and 2044.

Seven intersections within city limits are anticipated to operate below their minimum adopted LOS standard by 2044. These include existing (2023) deficiencies at three locations. Three WSDOT intersections on key access routes outside Bremerton city limits will operate with high delay and LOS deficiencies by 2044. Possible mitigation strategies for LOS-deficient intersections are described in the following section.

In addition to the LOS-deficient intersections described above, the intersection of Loxie Eagans Blvd & National Avenue will operate at LOS F by 2044. This intersection is in Kitsap County, which currently has no adopted minimum intersection LOS standard. Delay and queuing at this intersection may impact mobility at the Loxie Eagans Blvd interchange to the west, which is within city limits.

Seven intersections in Bremerton are anticipated to operate at their minimum adopted LOS standard by 2044. While these intersections will satisfy overall intersection LOS standards, individual intersection approaches or lanes may operate overcapacity during periods of peak travel demand. While capacity improvements are not required to maintain transportation concurrency at these locations, improvement projects may nevertheless be programmed to mitigate other operational or safety deficiencies. It is recommended that these intersections be monitored through the GMA-required transportation concurrency management process. If LOS deficiencies are triggered by ongoing development, mitigation should be identified.

Intersections which are anticipated to operate at their minimum LOS standards by 2044 include:

- 11th Street & Pacific Ave (AM LOS B/PM LOS E) (intersection #88)
- Kitsap Way (SR 310) & SR 3 northbound ramp (LOS B/D) (#3)
- Kitsap Way (SR 310) & National Ave (LOS C/D) (#7)
- Warren Ave (SR 303) & 11th Street (LOS C/E) (#22)
- Wheaton Way (SR 303) & Riddell Rd (LOS C/E) (#28)
- Burwell St (SR 304) & Naval Ave (LOS C/D) (#37)
- SR 3 SB ramps & Austin Dr (LOS C/D) (#94)

MITIGATION STRATEGIES

Existing Level of Service Policy

This section describes transportation improvement strategies which may be implemented to mitigate anticipated intersection LOS deficiencies through the 2044 analysis horizon. Mitigation strategies were identified through review of intersection operations model results, intersection and corridor context, WSDOT *Design Manual* guidance, and review of previous transportation planning studies including the *SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study* (WSDOT 2018), *SR 303 Corridor Study* (Parametrix 2021), *Joint Compatibility Transportation Plan* (Parametrix 2023), and *West Kitsap Way Planning Study* (City of Bremerton 2023).

The mitigation strategies identified in this section are intended to guide long-range citywide transportation and capital planning efforts. The final selection of intersection improvement strategies will require more detailed analysis, and improvements on WSDOT facilities will require coordination with WSDOT, including following the WSDOT Intersection Control Evaluation (ICE) process.

Suggested mitigation strategies are summarized in **Table 5** and described below.

Table 5. Suggested Transportation Improvement Projects to Mitigate LOS Deficiencies

ID	Name	Deficiency Horizon	Possible Mitigation
2	Kitsap Way (SR 310) & SR 3 SB Off-Ramp	2044	Rechannelize north and south legs within existing ROW (West Kitsap Way Planning Study) (Comp Plan #8.1.50)
8	Kitsap Way (SR 310) & Marine Dr	2023	Near-term: Implement adaptive signal control. Long-term (2044): Convert westbound RT lane to peak-usage through-right lane continuing to National Ave. Alternatively, a new multilane roundabout. (#8.1.57)
9	Kitsap Way (SR 310) & Corbett Dr	2044	New multi-lane roundabout with two lanes in each direction of Kitsap Way (SR 310)
21	Warren Ave (SR 303) & Burwell St (SR 304)	2044	Implement adaptive signal control and close south leg driveway (SR 303 Corridor Study) (#8.1.58)
25	Wheaton Way (SR 303) & Sheridan Rd	2044	Implement adaptive signal control (SR 303 Corridor Study) (#8.1.28)
104	Loxie Eagans Blvd & SR 3 SB Ramps	2023	Possible WSDOT-funded signal or roundabout; not subject to GMA concurrency requirements.
216	SR 3 & Imperial Way	2023	Possible developer- or WSDOT-funded improvement; not subject to GMA concurrency requirements.

Intersection LOS deficiencies will occur along three WSDOT arterial corridors in Bremerton: Kitsap Way (SR 310), Wheaton Way/Warren Avenue (SR 303), and SR 3.

Intersection LOS deficiencies and suggested mitigation strategies along Kitsap Way (SR 310) include:

- Kitsap Way (SR 310) & SR 3 southbound off-ramp will reach LOS-deficient status by 2044, operating at LOS D in the AM peak hour and LOS F in the PM peak hour. Mitigation may include rechannelization of the north (SR 3 off-ramp) leg to provide a second left-turn lane and reconfiguration of signal phasing to provide more efficient green allocation. This mitigation may be achieved within the existing intersection right-of-way and is identified as the preferred alternative at this location in the West Kitsap Way Planning Study.
- Kitsap Way (SR 310) & Marine Drive operated at LOS-deficient status in 2023. By 2044, it will operate at LOS E overall in the AM and PM peak hours. In the near-term, intersection LOS D may be achieved through implementation of adaptive signal control. Long-term mitigation may include the conversion of the westbound (Kitsap Way) right-turn lane to a through-right lane and the addition of a third westbound through lane from Marine Drive to National Drive. The inside through lane would transition into the existing left-turn lane at National Drive. This mitigation would require reconfiguration of the existing bike lane on the north side of Kitsap Way. Alternatively, mitigation may include a multi-lane roundabout.

- Kitsap Way (SR 310) & Corbett Drive will reach LOS-deficient status by 2044, operating at LOS F in the AM and PM peak hours as a result of delay on the stop-controlled approaches. Right-in/right-out turn restrictions may be considered at this location. However, turn restrictions would limit access to residential development to the north of Kitsap Way. Multi-lane roundabout control will allow the intersection to maintain the minimum LOS D standard while maintaining to and from residential development to the north of Kitsap Way.

Intersection LOS deficiencies and suggested mitigation strategies along Wheaton Way/Warren Avenue (SR 303) include:

- Warren Ave (SR 303) & Burwell St (SR 304) will reach LOS-deficient status by 2044, operating at LOS D in the AM peak hour and LOS E in the PM peak hour. The minimum LOS standard for SR 304 is LOS D. The south intersection leg currently provides access to a parking lot. Mitigation may include closure of the parking lot access, which will allow more efficient allocation of signal green time to the other three approaches. This intersection was identified for improvement in the SR 303 Corridor Study.
- Wheaton Way (SR 303) & Sheridan Rd will reach LOS-deficient status by 2044, operating at LOS D in the AM peak hour and LOS F in the PM peak hour. The SR 303 Corridor Study preferred alternative recommends adaptive signal control at this location.

Intersection LOS deficiencies and suggested mitigation strategies along SR 3 include:

- SR 3 southbound off-ramp & Loxie Eagans Blvd operated at LOS-deficient status in 2023. By 2044, it will operate at LOS F in the AM and PM peak hours. Southbound off-ramp demand will exceed the available capacity and the average PM peak hour ramp delay will exceed 5 minutes per vehicle. Mitigation may include a new traffic signal or multi-lane roundabout, as identified in the SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study. Further analysis will be required to determine the preferred intersection configuration. This intersection is on a WSDOT facility and is not subject to GMA concurrency requirements. Intersection improvements may be led by WSDOT.
- SR 3 & Imperial Way operated at LOS-deficient status in 2023. The anticipated buildout of the Puget Sound Industrial Center (PSIC) by 2044 will require intersection improvements to maintain mobility and property access to local and regional trips using this intersection. Mitigation may include a multi-lane roundabout, as identified in the SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study. This intersection is on a WSDOT facility and is not subject to GMA concurrency requirements. Intersection improvements may be led by WSDOT.

The following intersections along SR 3 are outside Bremerton city limits but will operate with LOS deficiencies in 2044. Mitigation strategies are identified below for reference, but improvements at these intersections are not the responsibility of the City of Bremerton nor do these deficiencies trigger transportation concurrency failures. Improvement projects at these locations will be led by WSDOT.

- SR 3 & Sam Christopherson Ave operated at LOS-deficient status in 2023. By 2044, it will operate at LOS F in the AM and PM peak hours. This intersection will be significantly impacted by the anticipated buildout of PSIC, as described above. Mitigation may include a new multi-lane roundabout, as identified in the SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study.

- SR 3 southbound & Belfair Valley Rd/Sherman Heights Rd operated at LOS-deficient status in 2023. By 2044, it will operate at LOS A in the AM peak hour and LOS F in the PM peak hour. The Belfair Valley Rd/Sherman Heights Rd corridor is anticipated to continue to serve as an alternate route by which drivers will avoid increasing peak period congestion along SR 3. The SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study identifies this intersection as a location for a future roundabout. However, closure of the SR 3 southbound off-ramp may be preferred to improve safety by removing the possibility of queues stacking onto SR 3.
- SR 3 at Airport Way will reach LOS-deficient status by 2044, operating at LOS F in the AM and PM peak hours. The anticipated buildout of PSIC by 2044 will require intersection improvements to maintain mobility and property access to local and regional trips using this intersection. Mitigation may include widening the existing single-lane roundabout to provide two lanes in each direction of SR 3.

Long-range intersection operations forecasts were developed before and after the identified mitigation strategies for each of the LOS-deficient intersections within city limits. The 2044 intersection operations forecasts are summarized in **Table 6**. Full intersection capacity reports are provided in Attachment 1.

The identified mitigation strategies will allow each LOS-deficient intersection to satisfy its minimum LOS standard through 2044. These transportation improvement projects will be necessary to support the long-range development targets identified in the Bremerton Comprehensive Plan update.

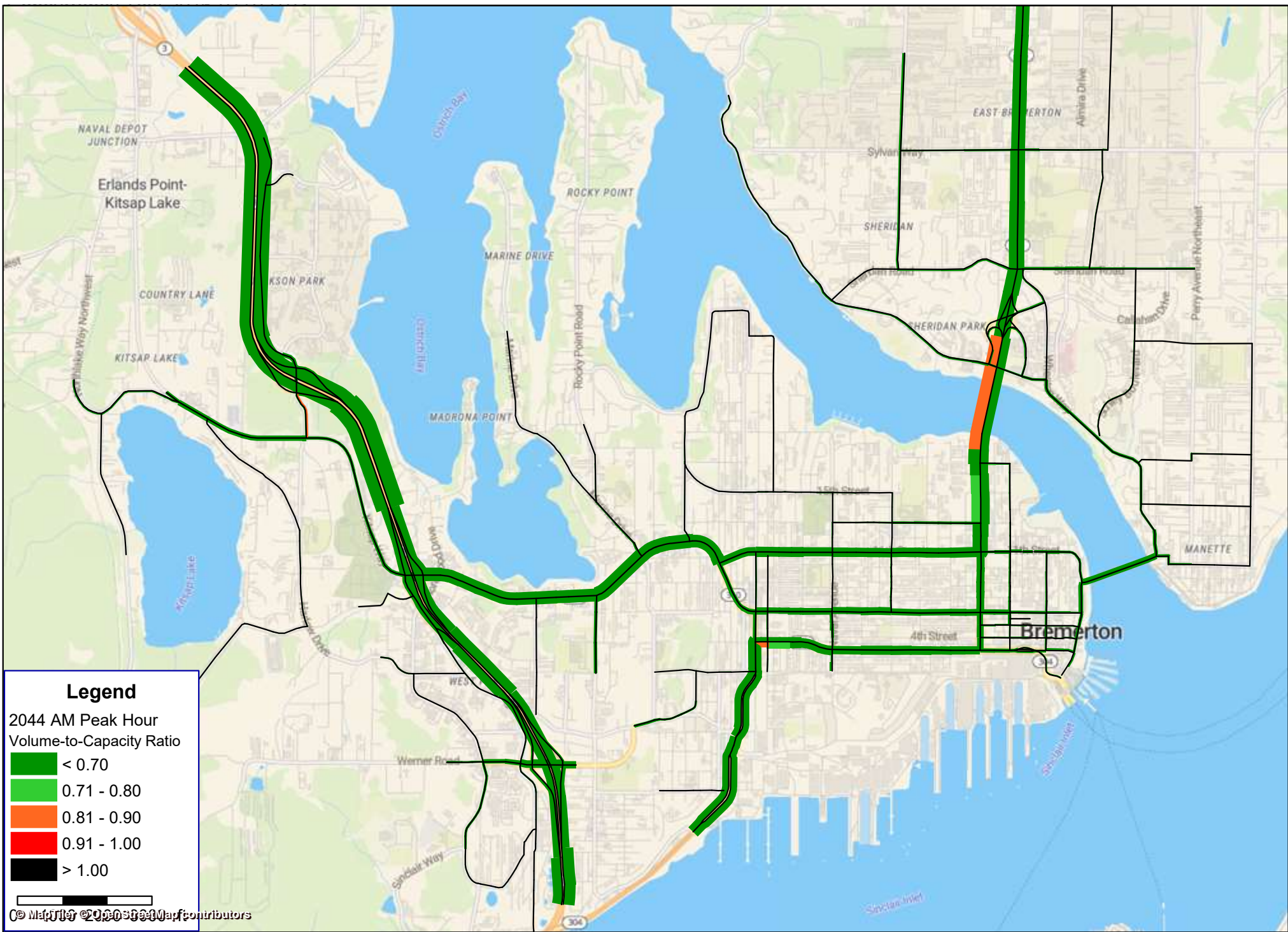
Table 6. 2044 Mitigated Intersection LOS Results

ID	Name	Control	LOS Std	2044 PM Peak Hour LOS (Delay) ¹	
				AM	PM
2	Kitsap Way (SR 310) & SR 3 SB Off-Ramp		D		
	<i>Existing Configuration</i>	Signal		D (39)	F (89)
	<i>Reconfigured Intersection</i>	Signal		C (34)	D (53)
8	Kitsap Way (SR 310) & Marine Dr		D		
	<i>Existing Configuration</i>	Signal		E (62)	E (74)
	<i>With WB Peak-Usage Lane</i>	Signal		D (43)	C (32)
	<i>With Multi-Lane Roundabout</i>	RAB		A (5)	A (8)
9	Kitsap Way (SR 310) & Corbett Dr		D		
	<i>Existing Configuration</i>	TWSC		F (262)	F (>300)
	<i>With Multi-Lane Roundabout</i>	RAB		A (4)	A (4)
21	Warren Ave (SR 303) & Burwell St (SR 304)		E*		
	<i>Existing Configuration</i>	Signal		D (41)	E (75)
	<i>Without South Leg</i>	Signal		C (33)	D (54)
25	Wheaton Way (SR 303) & Sheridan Rd		E*		
	<i>Existing Configuration</i>	Signal		D (46)	F (85)
	<i>With Adaptive Signal Control</i>	Signal		D (46)	E (68)
104	Loxie Eagans Blvd & SR 3 SB Ramps		D		
	<i>Existing Configuration</i>	TWSC		F (>300)	F (>300)
	<i>With Signal Control</i>	Signal		B (16)	A (3)

ID	Name	Control	LOS Std	2044 PM Peak Hour LOS (Delay) ¹	
				AM	PM
216	SR 3 & Imperial Way		D		
	<i>Existing Configuration</i>	Signal		E (65)	E (77)
	<i>With Multi-Lane Roundabout</i>	RAB		B (14)	B (17)

E*: LOS E/Mitigated standard; LOS-deficient intersections are highlighted
¹Intersection Level of Service and delay

- Attachment 1. 2044 Segment Volume-to-Capacity Ratio Maps
- Attachment 2. Intersection Capacity Reports



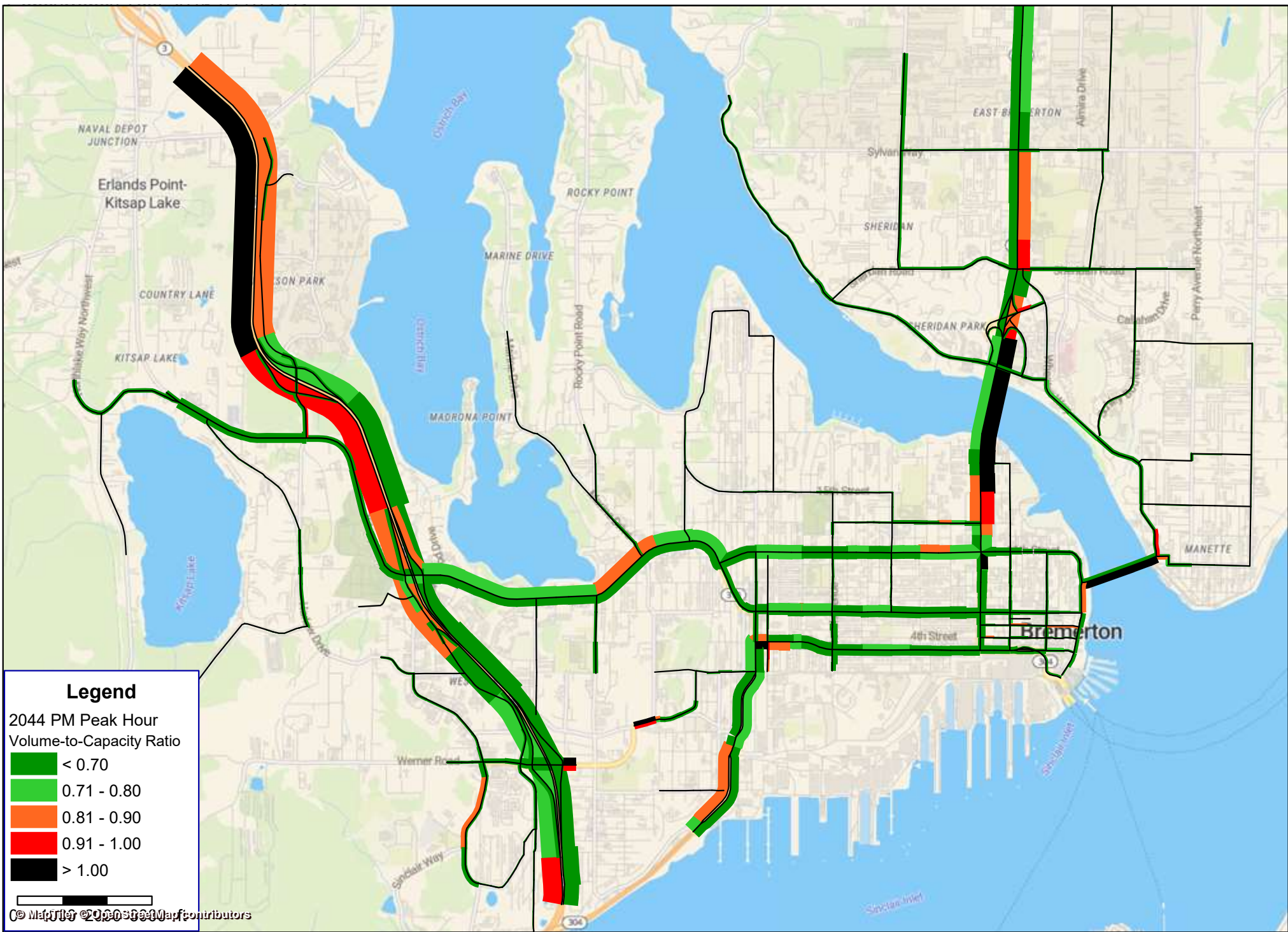
Legend

2044 AM Peak Hour
Volume-to-Capacity Ratio

- < 0.70
- 0.71 - 0.80
- 0.81 - 0.90
- 0.91 - 1.00
- > 1.00

© MapTiler 2020-2024 Map contributors

2044 AM Peak Hour Arterial & Collector Volume-to-Capacity Ratio



Legend

2044 PM Peak Hour
Volume-to-Capacity Ratio

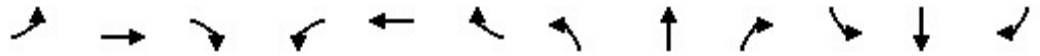
- < 0.70
- 0.71 - 0.80
- 0.81 - 0.90
- 0.91 - 1.00
- > 1.00

© MapTiler 2020-2024 Map contributors

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↑	↑↑	↑↑		↑		↑	↑	↑	↑	
Traffic Volume (veh/h)	0	292	127	208	193	0	24	0	119	514	85	7	
Future Volume (veh/h)	0	292	127	208	193	0	24	0	119	514	85	7	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	0	1547	1547	1522	1522	0	1384	0	1384	1560	1560	1560	
Adj Flow Rate, veh/h	0	340	148	242	224	0	28	0	0	669	0	0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Percent Heavy Veh, %	0	5	5	7	7	0	18	0	18	4	4	4	
Cap, veh/h	0	1550	691	295	1937	0	0	0		758	0		
Arrive On Green	0.00	0.53	0.53	0.18	1.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	
Sat Flow, veh/h	0	3017	1311	2812	2968	0		0		2971	0	1322	
Grp Volume(v), veh/h	0	340	148	242	224	0		0.0		669	0	0	
Grp Sat Flow(s),veh/h/ln	0	1470	1311	1406	1446	0				1485	0	1322	
Q Serve(g_s), s	0.0	7.4	7.2	9.9	0.0	0.0				26.0	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	7.4	7.2	9.9	0.0	0.0				26.0	0.0	0.0	
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00	
Lane Grp Cap(c), veh/h	0	1550	691	295	1937	0				758	0		
V/C Ratio(X)	0.00	0.22	0.21	0.82	0.12	0.00				0.88	0.00		
Avail Cap(c_a), veh/h	0	1550	691	434	1937	0				1003	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00	
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	15.2	15.1	48.4	0.0	0.0				42.9	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.3	0.7	9.6	0.1	0.0				7.9	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	0.0	4.5	4.0	6.5	0.1	0.0				15.4	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	15.5	15.8	58.0	0.1	0.0				50.8	0.0	0.0	
LnGrp LOS	A	B	B	E	A	A				D	A		
Approach Vol, veh/h		488			466						669		
Approach Delay, s/veh		15.6			30.2						50.8		
Approach LOS		B			C						D		
Timer - Assigned Phs			3	4		6		8					
Phs Duration (G+Y+Rc), s			17.1	67.8		35.1		84.9					
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5					
Max Green Setting (Gmax), s			18.5	31.5		40.5		54.5					
Max Q Clear Time (g_c+I1), s			11.9	9.4		28.0		2.0					
Green Ext Time (p_c), s			0.6	3.2		2.7		1.8					
Intersection Summary													
HCM 6th Ctrl Delay			34.3										
HCM 6th LOS			C										
Notes													
User approved volume balancing among the lanes for turning movement.													
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

HCM 6th Signalized Intersection Summary

3: SR 3 NB Off-Ramp/SR 3 NB On-Ramp & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	881	0	0	354	647	54	1	104	0	0	0
Future Volume (veh/h)	63	881	0	0	354	647	54	1	104	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1547	1547	0	0	1572	1572	1510	1510	1510			
Adj Flow Rate, veh/h	73	1024	0	0	412	0	63	1	0			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	5	5	0	0	3	3	8	8	8			
Cap, veh/h	1041	2532	0	0	506		78	1				
Arrive On Green	1.00	1.00	0.00	0.00	0.28	0.00	0.06	0.06	0.00			
Sat Flow, veh/h	1474	3017	0	0	3066	1332	1416	22	1279			
Grp Volume(v), veh/h	73	1024	0	0	412	0	64	0	0			
Grp Sat Flow(s),veh/h/ln	1474	1470	0	0	1494	1332	1439	0	1279			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.4	0.0	5.3	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.4	0.0	5.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	1041	2532	0	0	506		79	0				
V/C Ratio(X)	0.07	0.40	0.00	0.00	0.81		0.81	0.00				
Avail Cap(c_a), veh/h	1041	2532	0	0	1693		336	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(l)	0.75	0.75	0.00	0.00	0.92	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	41.2	0.0	56.1	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	12.4	0.0	17.0	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			
%ile BackOfQ(95%),veh/lr	0.0	0.2	0.0	0.0	9.7	0.0	4.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	53.7	0.0	73.1	0.0	0.0			
LnGrp LOS	A	A	A	A	D		E	A				
Approach Vol, veh/h	1097				412		64					
Approach Delay, s/veh	0.3				53.7		73.1					
Approach LOS	A				D		E					
Timer - Assigned Phs				4		6		7		8		
Phs Duration (G+Y+Rc), s				108.4		11.6		83.0		25.3		
Change Period (Y+Rc), s				5.0		5.0		5.0		5.0		
Max Green Setting (Gmax), s				82.0		28.0		9.0		68.0		
Max Q Clear Time (g_c+I1), s				2.0		7.3		2.0		17.4		
Green Ext Time (p_c), s				9.5		0.2		0.1		2.9		
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

4: Shorewood Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	893	28	3	830	12	13	2	1	42	0	63
Future Volume (veh/h)	33	893	28	3	830	12	13	2	1	42	0	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1560	1560	1560	1447	1447	1447	1585	1585	1585
Adj Flow Rate, veh/h	38	1015	0	3	943	14	15	2	1	48	0	72
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	4	4	4	13	13	13	2	2	2
Cap, veh/h	284	1105		720	2240	998	103	11	3	172	0	105
Arrive On Green	0.07	0.75	0.00	0.83	1.00	1.00	0.08	0.08	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1485	2964	1322	1485	2964	1320	609	138	44	1418	0	1333
Grp Volume(v), veh/h	38	1015	0	3	943	14	18	0	0	48	0	72
Grp Sat Flow(s),veh/h/ln	1485	1482	1322	1485	1482	1320	791	0	0	1418	0	1333
Q Serve(g_s), s	2.0	33.2	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	6.3
Cycle Q Clear(g_c), s	2.0	33.2	0.0	0.0	0.0	0.0	5.1	0.0	0.0	3.8	0.0	6.3
Prop In Lane	1.00		1.00	1.00		1.00	0.83		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	284	1105		720	2240	998	118	0	0	172	0	105
V/C Ratio(X)	0.13	0.92		0.00	0.42	0.01	0.15	0.00	0.00	0.28	0.00	0.68
Avail Cap(c_a), veh/h	354	1544		720	2240	998	348	0	0	436	0	355
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.00	0.91	0.91	0.91	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	13.8	0.0	4.5	0.0	0.0	53.9	0.0	0.0	52.7	0.0	53.8
Incr Delay (d2), s/veh	0.2	12.2	0.0	0.0	0.5	0.0	0.6	0.0	0.0	0.9	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	10.0	0.0	0.0	0.3	0.0	1.0	0.0	0.0	2.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	26.0	0.0	4.5	0.5	0.0	54.5	0.0	0.0	53.5	0.0	61.4
LnGrp LOS	C	C		A	A	A	D	A	A	D	A	E
Approach Vol, veh/h		1053			960			18				120
Approach Delay, s/veh		26.0			0.5			54.5				58.2
Approach LOS		C			A			D				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.5	55.3	50.3		14.5	9.3	96.2				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		32.0	10.0	* 63		32.0	10.0	62.5				
Max Q Clear Time (g_c+I1), s		7.1	2.0	35.2		8.3	4.0	2.0				
Green Ext Time (p_c), s		0.0	0.0	9.6		0.5	0.0	10.4				

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	933	19	16	873	0	66	0	13	0	0	0
Future Volume (veh/h)	0	933	19	16	873	0	66	0	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1522	1522	1522	1610	1610	1610
Adj Flow Rate, veh/h	0	1060	22	18	992	0	75	0	15	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	3	3	3	7	7	7	0	0	0
Cap, veh/h	745	2304	1006	249	1086	0	156	0	120	0	114	0
Arrive On Green	0.00	1.00	1.00	0.05	0.73	0.00	0.07	0.00	0.07	0.00	0.00	0.00
Sat Flow, veh/h	1485	2964	1294	1497	3066	0	1350	0	1279	0	1610	0
Grp Volume(v), veh/h	0	1060	22	18	992	0	75	0	15	0	0	0
Grp Sat Flow(s),veh/h/ln	1485	1482	1294	1497	1494	0	1350	0	1279	0	1610	0
Q Serve(g_s), s	0.0	0.0	0.0	1.0	32.3	0.0	6.6	0.0	1.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.0	32.3	0.0	6.6	0.0	1.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	745	2304	1006	249	1086	0	156	0	120	0	114	0
V/C Ratio(X)	0.00	0.46	0.02	0.07	0.91	0.00	0.48	0.00	0.13	0.00	0.00	0.00
Avail Cap(c_a), veh/h	745	2304	1006	340	1531	0	431	0	381	0	443	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.91	0.91	0.92	0.92	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	26.0	14.8	0.0	54.8	0.0	49.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.1	12.2	0.0	2.3	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	0.6	10.3	0.0	4.2	0.0	0.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	26.1	27.0	0.0	57.1	0.0	50.4	0.0	0.0	0.0
LnGrp LOS	A	A	A	C	C	A	E	A	D	A	A	A
Approach Vol, veh/h		1082			1010			90				0
Approach Delay, s/veh		0.6			27.0			56.0				0.0
Approach LOS		A			C			E				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.5	57.3	49.1		13.5	7.7	98.8				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		33.0	10.0	* 62		33.0	10.0	61.5				
Max Q Clear Time (g_c+I1), s		8.6	0.0	34.3		0.0	3.0	2.0				
Green Ext Time (p_c), s		0.4	0.0	9.3		0.0	0.0	12.5				

Intersection Summary

HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

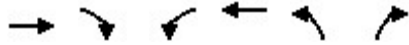
Notes

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

HCM 6th Signalized Intersection Summary

6: Oyster Bay Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	909	23	33	880	50	59
Future Volume (veh/h)	909	23	33	880	50	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1572	1572	1585	1585	1560	1560
Adj Flow Rate, veh/h	1045	26	38	1011	57	68
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	2	2	4	4
Cap, veh/h	2306	1006	521	2558	100	136
Arrive On Green	1.00	1.00	0.07	1.00	0.07	0.07
Sat Flow, veh/h	3066	1304	1509	3091	1485	1322
Grp Volume(v), veh/h	1045	26	38	1011	57	68
Grp Sat Flow(s),veh/h/ln	1494	1304	1509	1506	1485	1322
Q Serve(g_s), s	0.0	0.0	0.5	0.0	4.5	5.8
Cycle Q Clear(g_c), s	0.0	0.0	0.5	0.0	4.5	5.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2306	1006	521	2558	100	136
V/C Ratio(X)	0.45	0.03	0.07	0.40	0.57	0.50
Avail Cap(c_a), veh/h	2306	1006	605	2558	421	422
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	0.88	0.88	0.92	0.92	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	1.8	0.0	54.3	50.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	5.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	0.2	0.3	3.3	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.6	0.0	1.9	0.4	59.3	53.7
LnGrp LOS	A	A	A	A	E	D
Approach Vol, veh/h	1071			1049	125	
Approach Delay, s/veh	0.6			0.5	56.3	
Approach LOS	A			A	E	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			9.3	97.6	13.1	106.9
Change Period (Y+Rc), s			5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s			11.0	60.0	34.0	76.0
Max Q Clear Time (g_c+I1), s			2.5	2.0	7.8	2.0
Green Ext Time (p_c), s			0.0	12.2	0.4	11.6
Intersection Summary						
HCM 6th Ctrl Delay			3.6			
HCM 6th LOS			A			

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	833	97	206	868	1	56	0	197	0	1	1
Future Volume (veh/h)	0	833	97	206	868	1	56	0	197	0	1	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1522	1522	1522	1610	1610	1610
Adj Flow Rate, veh/h	0	915	0	226	954	1	62	0	216	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	4	3	3	3	7	7	7	0	0	0
Cap, veh/h	1	999		544	2260	2	310	0	240	0	137	137
Arrive On Green	0.00	0.67	0.00	0.73	1.00	1.00	0.19	0.00	0.19	0.00	0.19	0.19
Sat Flow, veh/h	1485	2964	1322	1497	3062	3	1340	0	1284	0	735	735
Grp Volume(v), veh/h	0	915	0	226	465	490	62	0	216	0	0	2
Grp Sat Flow(s),veh/h/ln	1485	1482	1322	1497	1494	1572	1340	0	1284	0	0	1471
Q Serve(g_s), s	0.0	31.6	0.0	7.1	0.0	0.0	4.7	0.0	19.7	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.0	31.6	0.0	7.1	0.0	0.0	4.8	0.0	19.7	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	1	999		544	1103	1160	310	0	240	0	0	275
V/C Ratio(X)	0.00	0.92		0.42	0.42	0.42	0.20	0.00	0.90	0.00	0.00	0.01
Avail Cap(c_a), veh/h	130	1445		544	1103	1160	401	0	326	0	0	374
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.89	0.00	0.84	0.84	0.84	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.1	0.0	11.4	0.0	0.0	41.7	0.0	47.7	0.0	0.0	39.7
Incr Delay (d2), s/veh	0.0	13.0	0.0	0.4	1.0	0.9	0.3	0.0	21.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	11.6	0.0	3.5	0.6	0.6	2.9	0.0	12.2	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.1	0.0	11.8	1.0	0.9	42.0	0.0	69.2	0.0	0.0	39.7
LnGrp LOS	A	C		B	A	A	D	A	E	A	A	D
Approach Vol, veh/h		915		1181			278				2	
Approach Delay, s/veh		31.1		3.0			63.2				39.7	
Approach LOS		C		A			E				D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.9	48.1	44.9		26.9	0.0	93.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.5	17.5	58.5		30.5	10.5	65.5				
Max Q Clear Time (g_c+I1), s		21.7	9.1	33.6		2.1	0.0	2.0				
Green Ext Time (p_c), s		0.7	0.4	6.9		0.0	0.0	7.3				

Intersection Summary

HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	925	41	29	896	37	47	26	53	89	21	132
Future Volume (veh/h)	57	925	41	29	896	37	47	26	53	89	21	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	0.98		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1572	1572	1572	1560	1560	1560
Adj Flow Rate, veh/h	62	1005	45	32	974	40	51	28	58	97	23	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	3	3	3	3	3	3	4	4	4
Cap, veh/h	440	1047	452	435	1039	452	121	118	98	283	28	172
Arrive On Green	0.59	0.71	0.71	0.29	0.35	0.35	0.04	0.07	0.07	0.11	0.15	0.15
Sat Flow, veh/h	1485	2964	1280	1497	2987	1301	1497	1572	1311	1485	186	1157
Grp Volume(v), veh/h	62	1005	45	32	974	40	51	28	58	97	0	166
Grp Sat Flow(s),veh/h/ln	1485	1482	1280	1497	1494	1301	1497	1572	1311	1485	0	1343
Q Serve(g_s), s	2.2	37.1	1.3	1.9	37.9	2.5	0.0	2.0	5.1	0.0	0.0	14.4
Cycle Q Clear(g_c), s	2.2	37.1	1.3	1.9	37.9	2.5	0.0	2.0	5.1	0.0	0.0	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.86
Lane Grp Cap(c), veh/h	440	1047	452	435	1039	452	121	118	98	283	0	199
V/C Ratio(X)	0.14	0.96	0.10	0.07	0.94	0.09	0.42	0.24	0.59	0.34	0.00	0.83
Avail Cap(c_a), veh/h	440	1111	480	435	1070	466	160	472	393	283	0	414
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	16.8	11.6	30.8	37.9	26.3	55.2	52.3	53.7	45.7	0.0	49.7
Incr Delay (d2), s/veh	0.2	16.4	0.3	0.1	16.4	0.4	4.9	1.0	5.6	0.7	0.0	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	12.0	0.8	1.2	22.4	1.5	3.0	1.5	3.3	4.8	0.0	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	33.2	11.9	30.9	54.3	26.7	60.1	53.3	59.3	46.4	0.0	58.4
LnGrp LOS	B	C	B	C	D	C	E	D	E	D	A	E
Approach Vol, veh/h		1112			1046			137			263	
Approach Delay, s/veh		31.5			52.5			58.4			54.0	
Approach LOS		C			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	14.0	39.9	47.4	9.9	22.8	40.6	46.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	30.0	36.0	10.0	45.0	8.0	37.0	12.0	43.0				
Max Q Clear Time (g_c+1), s	12.0	7.1	3.9	39.1	2.0	16.4	4.2	39.9				
Green Ext Time (p_c), s	0.1	0.3	0.0	3.3	0.1	1.0	0.1	1.9				
Intersection Summary												
HCM 6th Ctrl Delay											43.8	
HCM 6th LOS											D	

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

07/01/2024

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↕			↕	
Traffic Vol, veh/h	15	1027	3	25	897	8	12	11	9	23	0	52
Future Vol, veh/h	15	1027	3	25	897	8	12	11	9	23	0	52
Conflicting Peds, #/hr	3	0	2	2	0	3	2	0	2	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	22	22	22	0	0	0
Mvmt Flow	16	1104	3	27	965	9	13	12	10	25	0	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	977	0	0	1109	0	0	1678	2169	557	1620	2168	493
Stage 1	-	-	-	-	-	-	1138	1138	-	1027	1027	-
Stage 2	-	-	-	-	-	-	540	1031	-	593	1141	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.94	6.94	7.34	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.94	5.94	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.94	5.94	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.72	4.22	3.52	3.5	4	3.3
Pot Cap-1 Maneuver	690	-	-	620	-	-	50	36	426	70	48	527
Stage 1	-	-	-	-	-	-	183	236	-	255	314	-
Stage 2	-	-	-	-	-	-	446	268	-	464	278	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	688	-	-	619	-	-	42	33	424	47	45	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	42	33	-	47	45	-
Stage 1	-	-	-	-	-	-	178	230	-	249	300	-
Stage 2	-	-	-	-	-	-	380	256	-	419	271	-

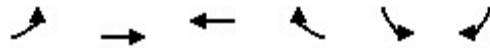
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			171.8			73.1		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	50	688	-	-	619	-	-	127
HCM Lane V/C Ratio	0.688	0.023	-	-	0.043	-	-	0.635
HCM Control Delay (s)	171.8	10.4	-	-	11.1	-	-	73.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.7	0.1	-	-	0.1	-	-	3.3

HCM 6th Signalized Intersection Summary

10: Kitsap Way (SR 310) & 11th St

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	589	0	213	8	0	593
Future Volume (veh/h)	589	0	213	8	0	593
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1560	1560	1572	1572	0	1560
Adj Flow Rate, veh/h	654	0	237	9	0	659
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	3	3	0	4
Cap, veh/h	1611	1475	1001	38	0	0
Arrive On Green	0.56	0.00	0.34	0.34	0.00	0.00
Sat Flow, veh/h	2882	1560	3013	111	0	
Grp Volume(v), veh/h	654	0	120	126	0.0	
Grp Sat Flow(s),veh/h/ln	1441	1560	1494	1552		
Q Serve(g_s), s	15.5	0.0	6.9	7.0		
Cycle Q Clear(g_c), s	15.5	0.0	6.9	7.0		
Prop In Lane	1.00			0.07		
Lane Grp Cap(c), veh/h	1611	1475	509	529		
V/C Ratio(X)	0.41	0.00	0.24	0.24		
Avail Cap(c_a), veh/h	1611	1475	509	529		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	15.1	0.0	28.3	28.4		
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.6	0.0	4.5	4.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.3	0.0	28.6	28.6		
LnGrp LOS	B	A	C	C		
Approach Vol, veh/h		654	246			
Approach Delay, s/veh		15.3	28.6			
Approach LOS		B	C			
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	73.6	46.4			120.0	
Change Period (Y+Rc), s	6.5	5.5			6.5	
Max Green Setting (Gmax), s	38.5	39.5			83.5	
Max Q Clear Time (g_c+I1), s	17.5	9.0			0.0	
Green Ext Time (p_c), s	3.1	1.7			0.0	
Intersection Summary						
HCM 6th Ctrl Delay			18.9			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 11: Wycoff Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	594	6	15	177	8	2	8	45	10	4	1
Future Volume (veh/h)	4	594	6	15	177	8	2	8	45	10	4	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1610	1610	1610	1585	1585	1585	1610	1610	1610
Adj Flow Rate, veh/h	4	639	6	16	190	9	2	9	48	11	4	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	0	0	2	2	2	0	0	0
Cap, veh/h	1051	1301	12	748	1277	60	32	13	62	98	28	5
Arrive On Green	0.01	1.00	1.00	0.03	1.00	1.00	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1521	1580	15	1533	1523	72	21	235	1114	854	510	91
Grp Volume(v), veh/h	4	0	645	16	0	199	59	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1594	1533	0	1595	1370	0	0	1454	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.2	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.2	0.0	0.0	5.1	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.05	0.03		0.81	0.69		0.06
Lane Grp Cap(c), veh/h	1051	0	1313	748	0	1337	107	0	0	131	0	0
V/C Ratio(X)	0.00	0.00	0.49	0.02	0.00	0.15	0.55	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	1168	0	1313	832	0	1337	236	0	0	265	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.7	0.0	0.0	1.5	0.0	0.0	55.9	0.0	0.0	54.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.3	0.0	0.0	0.2	4.4	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.0	0.9	0.1	0.0	0.2	3.4	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.7	0.0	1.3	1.5	0.0	0.2	60.3	0.0	0.0	54.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	D	A	A
Approach Vol, veh/h		649			215			59			16	
Approach Delay, s/veh		1.3			0.3			60.3			54.5	
Approach LOS		A			A			E			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.7	6.5	102.9		10.7	4.7	104.6				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	81.0		18.0	10.0	80.0				
Max Q Clear Time (g_c+I1), s		7.1	2.2	2.0		3.2	2.1	2.0				
Green Ext Time (p_c), s		0.2	0.0	5.7		0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay				5.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	12	518	121	88	159	8	32	53	39	21	158	14
Future Volume (veh/h)	12	518	121	88	159	8	32	53	39	21	158	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	13	569	133	97	175	9	35	58	43	23	174	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	858	809	189	624	1031	53	124	125	93	195	201	17
Arrive On Green	0.04	1.00	1.00	0.05	0.68	0.68	0.03	0.15	0.15	0.02	0.14	0.14
Sat Flow, veh/h	1509	1236	289	1521	1506	77	1509	844	626	1521	1449	125
Grp Volume(v), veh/h	13	0	702	97	0	184	35	0	101	23	0	189
Grp Sat Flow(s),veh/h/ln	1509	0	1525	1521	0	1583	1509	0	1470	1521	0	1574
Q Serve(g_s), s	0.3	0.0	0.0	2.3	0.0	5.0	2.4	0.0	7.5	1.6	0.0	14.1
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.3	0.0	5.0	2.4	0.0	7.5	1.6	0.0	14.1
Prop In Lane	1.00		0.19	1.00		0.05	1.00		0.43	1.00		0.08
Lane Grp Cap(c), veh/h	858	0	998	624	0	1085	124	0	218	195	0	219
V/C Ratio(X)	0.02	0.00	0.70	0.16	0.00	0.17	0.28	0.00	0.46	0.12	0.00	0.86
Avail Cap(c_a), veh/h	957	0	998	678	0	1085	211	0	318	298	0	341
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.87	0.00	0.87	0.99	0.00	0.99	0.84	0.00	0.84	0.96	0.00	0.96
Uniform Delay (d), s/veh	6.4	0.0	0.0	5.2	0.0	6.7	43.8	0.0	46.7	43.7	0.0	50.6
Incr Delay (d2), s/veh	0.0	0.0	3.6	0.1	0.0	0.3	0.4	0.0	1.0	0.1	0.0	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.2	0.0	1.8	1.3	0.0	3.1	1.6	0.0	5.1	1.1	0.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	0.0	3.6	5.3	0.0	7.1	44.2	0.0	47.7	43.8	0.0	61.3
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	E
Approach Vol, veh/h		715			281			136			212	
Approach Delay, s/veh		3.7			6.4			46.8			59.4	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	21.8	9.8	82.5	7.0	20.7	6.1	86.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	26.0	10.0	58.0	10.0	26.0	10.0	58.0				
Max Q Clear Time (g_c+1), s	13.6	9.5	4.3	2.0	4.4	16.1	2.3	7.0				
Green Ext Time (p_c), s	0.0	0.4	0.1	5.3	0.0	0.6	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay				17.4								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

13: N Montgomery Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	543	106	34	243	1	11	0	10	0	3	1
Future Volume (veh/h)	3	543	106	34	243	1	11	0	10	0	3	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.96		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	3	603	118	38	270	1	12	0	11	0	3	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	980	1057	207	722	1361	5	68	6	26	0	46	15
Arrive On Green	0.01	1.00	1.00	0.04	0.86	0.86	0.04	0.00	0.04	0.00	0.04	0.04
Sat Flow, veh/h	1509	1282	251	1521	1590	6	567	150	657	0	1146	382
Grp Volume(v), veh/h	3	0	721	38	0	271	23	0	0	0	0	4
Grp Sat Flow(s),veh/h/ln	1509	0	1533	1521	0	1596	1374	0	0	0	0	1527
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	3.5	1.0	0.0	0.0	0.0	0.0	0.3
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	3.5	1.9	0.0	0.0	0.0	0.0	0.3
Prop In Lane	1.00		0.16	1.00		0.00	0.52		0.48	0.00		0.25
Lane Grp Cap(c), veh/h	980	0	1264	722	0	1366	100	0	0	0	0	61
V/C Ratio(X)	0.00	0.00	0.57	0.05	0.00	0.20	0.23	0.00	0.00	0.00	0.00	0.07
Avail Cap(c_a), veh/h	1098	0	1264	794	0	1366	362	0	0	0	0	356
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.00	0.58	0.96	0.00	0.96	0.98	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.7	0.0	0.0	1.0	0.0	1.5	56.2	0.0	0.0	0.0	0.0	55.5
Incr Delay (d2), s/veh	0.0	0.0	1.1	0.0	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.7	0.1	0.0	1.5	1.3	0.0	0.0	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.7	0.0	1.1	1.0	0.0	1.8	57.1	0.0	0.0	0.0	0.0	55.8
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		724			309			23				4
Approach Delay, s/veh		1.1			1.7			57.1				55.8
Approach LOS		A			A			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.8	8.3	102.9		8.8	4.6	106.7				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		28.0	10.0	70.0		28.0	10.0	70.0				
Max Q Clear Time (g_c+I1), s		3.9	2.4	2.0		2.3	2.0	5.5				
Green Ext Time (p_c), s		0.1	0.0	5.5		0.0	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay				2.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

14: Naval Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	377	153	145	228	9	59	49	46	30	90	7
Future Volume (veh/h)	118	377	153	145	228	9	59	49	46	30	90	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1572	1572	1572	1610	1610	1610
Adj Flow Rate, veh/h	124	397	161	153	240	9	62	52	48	32	95	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	3	3	3	0	0	0
Cap, veh/h	642	469	190	352	722	598	255	154	129	302	149	11
Arrive On Green	0.08	0.44	0.44	0.09	0.45	0.45	0.05	0.10	0.10	0.06	0.10	0.10
Sat Flow, veh/h	1509	1064	431	1521	1597	1323	1497	1572	1319	1533	1480	109
Grp Volume(v), veh/h	124	0	558	153	240	9	62	52	48	32	0	102
Grp Sat Flow(s),veh/h/ln	1509	0	1495	1521	1597	1323	1497	1572	1319	1533	0	1589
Q Serve(g_s), s	2.5	0.0	18.9	3.0	5.5	0.1	0.0	1.8	1.4	0.0	0.0	3.5
Cycle Q Clear(g_c), s	2.5	0.0	18.9	3.0	5.5	0.1	0.0	1.8	1.4	0.0	0.0	3.5
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	642	0	659	352	722	598	255	154	129	302	0	160
V/C Ratio(X)	0.19	0.00	0.85	0.44	0.33	0.02	0.24	0.34	0.37	0.11	0.00	0.64
Avail Cap(c_a), veh/h	940	0	934	768	1139	943	845	706	592	632	0	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.5	0.0	14.2	10.9	10.0	3.1	24.6	23.9	12.7	22.3	0.0	24.6
Incr Delay (d2), s/veh	0.2	0.0	5.7	1.0	0.3	0.0	0.6	1.6	2.1	0.2	0.0	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(95%),veh/ln	1.3	0.0	10.7	1.6	3.2	0.1	1.4	1.2	1.2	0.7	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.7	0.0	19.9	11.9	10.4	3.2	25.2	25.5	14.8	22.5	0.0	29.6
LnGrp LOS	A	A	B	B	B	A	C	C	B	C	A	C
Approach Vol, veh/h		682			402			162			134	
Approach Delay, s/veh		17.6			10.8			22.2			27.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	10.1	9.5	29.5	7.6	10.2	8.8	30.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	25.5	20.5	35.5	25.5	15.5	15.5	40.5				
Max Q Clear Time (g_c+I), s	12.0	3.8	5.0	20.9	2.0	5.5	4.5	7.5				
Green Ext Time (p_c), s	0.0	0.4	0.4	4.1	0.2	0.3	0.3	1.9				
Intersection Summary												
HCM 6th Ctrl Delay											17.2	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

16: Veneta Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	366	45	11	338	4	11	3	12	2	4	10
Future Volume (veh/h)	6	366	45	11	338	4	11	3	12	2	4	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	0.94		0.96	0.94		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	6	389	48	12	360	4	12	3	13	2	4	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	0	0	0
Cap, veh/h	646	831	686	609	821	9	240	58	99	156	61	135
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1017	1585	1308	951	1564	17	368	373	643	83	396	877
Grp Volume(v), veh/h	6	389	48	12	0	364	28	0	0	17	0	0
Grp Sat Flow(s),veh/h/ln1017	1585	1308	951	0	1582	1384	0	0	1355	0	0	0
Q Serve(g_s), s	0.1	4.3	0.5	0.2	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	4.3	0.5	4.6	0.0	4.0	0.5	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.43		0.46	0.12		0.65
Lane Grp Cap(c), veh/h	646	831	686	609	0	830	397	0	0	353	0	0
V/C Ratio(X)	0.01	0.47	0.07	0.02	0.00	0.44	0.07	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	2126	3137	2590	1993	0	3131	1174	0	0	1127	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	4.2	3.3	5.6	0.0	4.1	10.2	0.0	0.0	10.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.2	0.0	0.0	1.3	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	1.6	0.1	0.1	0.0	1.4	0.3	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	5.7	3.4	5.7	0.0	5.4	10.5	0.0	0.0	10.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		443			376			28			17	
Approach Delay, s/veh		5.4			5.4			10.5			10.4	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.2		8.8		19.2		8.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		20.5		55.5		20.5				
Max Q Clear Time (g_c+I1), s		6.3		2.3		6.6		2.5				
Green Ext Time (p_c), s		8.3		0.1		7.2		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

17: Warren Ave (SR 303) & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	212	22	52	114	22	36	462	25	89	596	134
Future Volume (veh/h)	86	212	22	52	114	22	36	462	25	89	596	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	91	226	23	55	121	23	38	491	27	95	634	143
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	298	264	27	184	275	231	499	1577	87	537	1344	303
Arrive On Green	0.07	0.19	0.19	0.05	0.17	0.17	0.04	0.54	0.54	0.10	1.00	1.00
Sat Flow, veh/h	1509	1413	144	1509	1585	1331	1509	2902	159	1497	2410	543
Grp Volume(v), veh/h	91	0	249	55	121	23	38	254	264	95	392	385
Grp Sat Flow(s),veh/h/ln	1509	0	1556	1509	1585	1331	1509	1506	1556	1497	1494	1459
Q Serve(g_s), s	5.4	0.0	17.0	3.2	7.5	1.6	1.2	10.2	10.3	3.1	0.0	0.0
Cycle Q Clear(g_c), s	5.4	0.0	17.0	3.2	7.5	1.6	1.2	10.2	10.3	3.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.10	1.00		0.37
Lane Grp Cap(c), veh/h	298	0	291	184	275	231	499	818	845	537	833	814
V/C Ratio(X)	0.31	0.00	0.86	0.30	0.44	0.10	0.08	0.31	0.31	0.18	0.47	0.47
Avail Cap(c_a), veh/h	408	0	488	218	396	333	587	818	845	589	833	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.97	0.00	0.97	0.98	0.98	0.98	0.99	0.99	0.99	0.79	0.79	0.79
Uniform Delay (d), s/veh	34.0	0.0	43.3	35.2	40.7	38.3	9.9	13.8	13.8	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	8.7	0.9	1.1	0.2	0.1	1.0	1.0	0.1	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(95%),veh/ln	3.7	0.0	11.6	2.2	5.5	1.0	0.7	6.5	6.7	1.7	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	52.0	36.1	41.8	38.4	10.0	14.8	14.8	9.8	1.5	1.6
LnGrp LOS	C	A	D	D	D	D	A	B	B	A	A	A
Approach Vol, veh/h		340			199			556			872	
Approach Delay, s/veh		47.3			39.8			14.4			2.4	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	64.3	10.5	25.1	8.6	65.8	12.0	23.6					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	39.5	8.5	34.5	10.5	38.5	15.5	27.5					
Max Q Clear Time (g_c+1/5), s	12.3	5.2	19.0	3.2	2.0	7.4	9.5					
Green Ext Time (p_c), s	0.1	4.0	0.0	1.5	0.0	7.1	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

18: Park Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (veh/h)	17	154	167	10	156	4	9	11	10	12	90	24
Future Volume (veh/h)	17	154	167	10	156	4	9	11	10	12	90	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	0.98		1.00	0.96		0.94	0.95		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		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	19	173	188	11	175	4	10	12	11	13	101	27
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	1	1	1
Cap, veh/h	165	572	477	149	568	12	239	211	140	159	345	86
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	59	1507	1258	32	1496	33	235	711	473	59	1164	290
Grp Volume(v), veh/h	192	0	188	190	0	0	33	0	0	141	0	0
Grp Sat Flow(s),veh/h/ln	1566	0	1258	1560	0	0	1419	0	0	1513	0	0
Q Serve(g_s), s	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	3.0	2.4	0.0	0.0	0.4	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.10		1.00	0.06		0.02	0.30		0.33	0.09		0.19
Lane Grp Cap(c), veh/h	737	0	477	729	0	0	589	0	0	590	0	0
V/C Ratio(X)	0.26	0.00	0.39	0.26	0.00	0.00	0.06	0.00	0.00	0.24	0.00	0.00
Avail Cap(c_a), veh/h	1843	0	1383	1828	0	0	1688	0	0	1793	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.1	0.0	6.3	6.1	0.0	0.0	7.0	0.0	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	1.1	0.4	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	1.1	1.0	0.0	0.0	0.2	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	0.0	7.4	6.5	0.0	0.0	7.1	0.0	0.0	8.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		380		190			33			141		
Approach Delay, s/veh		6.9		6.5			7.1			8.0		
Approach LOS		A		A			A			A		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		12.7		15.0			12.7			15.0		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		30.5		30.5			30.5			30.5		
Max Q Clear Time (g_c+I1), s		2.4		5.0			4.0			4.4		
Green Ext Time (p_c), s		0.2		3.9			1.5			2.1		
Intersection Summary												
HCM 6th Ctrl Delay				7.0								
HCM 6th LOS				A								

Intersection

Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	94	57	32	139	8	22	12	9	12	42	14
Future Vol, veh/h	25	94	57	32	139	8	22	12	9	12	42	14
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	4	4	4	2	2	2	5	5	5	3	3	3
Mvmt Flow	30	113	69	39	167	10	27	14	11	14	51	17
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	9.1	9.4	9	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	65%	0%	100%	0%	100%	0%	18%
Vol Thru, %	35%	0%	0%	62%	0%	95%	62%
Vol Right, %	0%	100%	0%	38%	0%	5%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	9	25	151	32	147	68
LT Vol	22	0	25	0	32	0	12
Through Vol	12	0	0	94	0	139	42
RT Vol	0	9	0	57	0	8	14
Lane Flow Rate	41	11	30	182	39	177	82
Geometry Grp	5	5	5	5	5	5	4b
Degree of Util (X)	0.069	0.015	0.047	0.247	0.06	0.249	0.127
Departure Headway (Hd)	6.05	5.019	5.652	4.883	5.605	5.064	5.568
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	590	709	633	733	638	708	641
Service Time	3.806	2.775	3.392	2.624	3.347	2.806	3.62
HCM Lane V/C Ratio	0.069	0.016	0.047	0.248	0.061	0.25	0.128
HCM Control Delay	9.3	7.9	8.7	9.2	8.7	9.5	9.4
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0.1	1	0.2	1	0.4

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	10	22	205	309	161
Future Volume (veh/h)	36	10	22	205	309	161
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1560	1560	1409	1409	1560	1560
Adj Flow Rate, veh/h	41	11	25	233	351	183
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	16	16	4	4
Cap, veh/h	95	25	394	909	451	235
Arrive On Green	0.08	0.08	0.04	0.65	0.47	0.47
Sat Flow, veh/h	1117	300	1342	1409	953	497
Grp Volume(v), veh/h	53	0	25	233	0	534
Grp Sat Flow(s),veh/h/ln1444		0	1342	1409	0	1450
Q Serve(g_s), s	1.2	0.0	0.3	2.3	0.0	10.2
Cycle Q Clear(g_c), s	1.2	0.0	0.3	2.3	0.0	10.2
Prop In Lane	0.77	0.21	1.00			0.34
Lane Grp Cap(c), veh/h	122	0	394	909	0	686
V/C Ratio(X)	0.43	0.00	0.06	0.26	0.00	0.78
Avail Cap(c_a), veh/h	1106	0	969	2349	0	1546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	5.5	2.5	0.0	7.3
Incr Delay (d2), s/veh	1.8	0.0	0.1	0.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.7	0.0	0.0	0.1	0.4	0.0	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	0.0	5.5	2.6	0.0	8.8
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	53			258	534	
Approach Delay, s/veh	16.3			2.9	8.8	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		26.0		7.3	5.7	20.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		55.5		25.5	15.5	35.5
Max Q Clear Time (g_c+I1), s		4.3		3.2	2.3	12.2
Green Ext Time (p_c), s		1.3		0.1	0.0	3.3

Intersection Summary

HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↑	↗		↕			↕	↗
Traffic Volume (veh/h)	540	310	0	0	182	38	0	1	2	82	5	483
Future Volume (veh/h)	540	310	0	0	182	38	0	1	2	82	5	483
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1522	1522	1610	1610	1610	1547	1547	1547
Adj Flow Rate, veh/h	562	323	0	0	190	40	0	1	2	85	5	503
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	7	7	0	0	0	5	5	5
Cap, veh/h	740	738	0	0	212	176	0	12	24	285	17	910
Arrive On Green	0.49	0.49	0.00	0.00	0.14	0.14	0.00	0.03	0.03	0.20	0.20	0.20
Sat Flow, veh/h	1509	1585	0	0	1522	1262	0	473	947	1395	82	1308
Grp Volume(v), veh/h	562	323	0	0	190	40	0	0	3	90	0	503
Grp Sat Flow(s),veh/h/ln	1509	1506	0	0	1522	1262	0	0	1420	1477	0	1308
Q Serve(g_s), s	42.9	19.8	0.0	0.0	17.4	4.0	0.0	0.0	0.3	7.3	0.0	27.1
Cycle Q Clear(g_c), s	42.9	19.8	0.0	0.0	17.4	4.0	0.0	0.0	0.3	7.3	0.0	27.1
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.67	0.94		1.00
Lane Grp Cap(c), veh/h	740	738	0	0	212	176	0	0	36	302	0	910
V/C Ratio(X)	0.76	0.44	0.00	0.00	0.90	0.23	0.00	0.00	0.08	0.30	0.00	0.55
Avail Cap(c_a), veh/h	740	738	0	0	225	187	0	0	320	302	0	910
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.86	0.00	0.86
Uniform Delay (d), s/veh	29.4	23.5	0.0	0.0	60.1	54.3	0.0	0.0	67.6	47.9	0.0	10.8
Incr Delay (d2), s/veh	5.4	0.9	0.0	0.0	39.5	3.0	0.0	0.0	1.4	1.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.4	11.8	0.0	0.0	14.1	2.6	0.0	0.0	0.2	5.1	0.0	25.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	24.3	0.0	0.0	99.6	57.3	0.0	0.0	69.0	49.2	0.0	12.1
LnGrp LOS	C	C	A	A	F	E	A	A	E	D	A	B
Approach Vol, veh/h		885			230			3			593	
Approach Delay, s/veh		31.0			92.2			69.0			17.7	
Approach LOS		C			F			E			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.6		74.6		34.0		24.8				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		32.0		40.0		29.0		21.0				
Max Q Clear Time (g_c+I1), s		2.3		44.9		29.1		19.4				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay					34.7							
HCM 6th LOS					C							

HCM 6th Signalized Intersection Summary
 22: Warren Ave (SR 303) & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔			↕↔		↔	↕↔		↔	↕↕	↔
Traffic Volume (veh/h)	452	240	23	0	203	42	13	548	11	101	673	431
Future Volume (veh/h)	452	240	23	0	203	42	13	548	11	101	673	431
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1522	1522	1522	0	1560	1560	1572	1572	1572	1572	1572	1572
Adj Flow Rate, veh/h	508	270	26	0	228	47	15	616	12	113	756	484
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	0	4	4	3	3	3	3	3	3
Cap, veh/h	499	502	48	0	320	65	276	1241	24	332	1356	832
Arrive On Green	0.30	0.61	0.61	0.00	0.13	0.13	0.01	0.14	0.14	0.12	0.91	0.91
Sat Flow, veh/h	2812	1367	132	0	2529	496	1497	2997	58	1497	2987	1313
Grp Volume(v), veh/h	508	0	296	0	136	139	15	307	321	113	756	484
Grp Sat Flow(s),veh/h/ln	1406	0	1498	0	1482	1465	1497	1494	1562	1497	1494	1313
Q Serve(g_s), s	19.5	0.0	12.6	0.0	9.7	10.0	0.6	20.9	20.9	4.7	5.2	9.6
Cycle Q Clear(g_c), s	19.5	0.0	12.6	0.0	9.7	10.0	0.6	20.9	20.9	4.7	5.2	9.6
Prop In Lane	1.00		0.09	0.00		0.34	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	499	0	550	0	194	192	276	618	647	332	1356	832
V/C Ratio(X)	1.02	0.00	0.54	0.00	0.70	0.73	0.05	0.50	0.50	0.34	0.56	0.58
Avail Cap(c_a), veh/h	499	0	742	0	397	393	348	618	647	358	1356	832
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.99	0.99	0.95	0.95	0.95	0.63	0.63	0.63
Uniform Delay (d), s/veh	38.7	0.0	15.9	0.0	45.8	45.9	18.0	36.9	36.9	17.3	3.0	1.6
Incr Delay (d2), s/veh	45.2	0.0	0.8	0.0	4.5	5.1	0.1	2.7	2.6	0.5	1.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	6.3	0.0	6.8	7.0	0.4	13.6	14.1	2.7	2.0	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.9	0.0	16.7	0.0	50.3	51.0	18.1	39.6	39.4	17.8	4.1	3.4
LnGrp LOS	F	A	B	A	D	D	B	D	D	B	A	A
Approach Vol, veh/h		804			275			643			1353	
Approach Delay, s/veh		59.2			50.7			39.0			5.0	
Approach LOS		E			D			D			A	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.1	51.0		46.9	7.7	55.4	26.0	20.9				
Change Period (Y+Rc), s	5.5	5.5		6.5	5.5	5.5	6.5	*6.5				
Max Green Setting (Gmax), s	5	29.5		54.5	7.5	30.5	19.5	*30				
Max Q Clear Time (g_c+10), s	10	22.9		14.6	2.6	11.6	21.5	12.0				
Green Ext Time (p_c), s	0.1	2.4		2.0	0.0	8.5	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Volume (veh/h)	170	14	20	6	7	1	0	985	3	0	1131	177
Future Volume (veh/h)	170	14	20	6	7	1	0	985	3	0	1131	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1535	1535	1535	1610	1610	1610	0	1547	1547	0	1572	1572
Adj Flow Rate, veh/h	179	15	21	6	7	1	0	1037	3	0	1191	186
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	0	5	5	0	3	3
Cap, veh/h	266	17	24	148	154	20	0	2208	6	0	1902	296
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.00	1.00	1.00	0.00	0.24	0.24
Sat Flow, veh/h	1122	94	132	552	838	107	0	3084	9	0	2668	403
Grp Volume(v), veh/h	215	0	0	14	0	0	0	507	533	0	685	692
Grp Sat Flow(s),veh/h/ln	1347	0	0	1498	0	0	0	1470	1546	0	1494	1499
Q Serve(g_s), s	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0	45.4
Cycle Q Clear(g_c), s	17.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	45.0	45.4
Prop In Lane	0.83		0.10	0.43		0.07	0.00		0.01	0.00		0.27
Lane Grp Cap(c), veh/h	308	0	0	322	0	0	0	1079	1135	0	1097	1101
V/C Ratio(X)	0.70	0.00	0.00	0.04	0.00	0.00	0.00	0.47	0.47	0.00	0.62	0.63
Avail Cap(c_a), veh/h	458	0	0	488	0	0	0	1079	1135	0	1097	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.54	0.54	0.00	0.62	0.62
Uniform Delay (d), s/veh	43.6	0.0	0.0	37.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	28.3
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.8	0.0	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.4	0.4	0.0	24.0	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	0.0	37.0	0.0	0.0	0.0	0.8	0.8	0.0	29.8	30.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	C	C
Approach Vol, veh/h		215			14			1040			1377	
Approach Delay, s/veh		47.0			37.0			0.8			29.9	
Approach LOS		D			D			A			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		85.3		24.7		85.3		24.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		68.5		32.5		68.5		32.5				
Max Q Clear Time (g_c+I1), s		2.0		19.0		47.4		2.8				
Green Ext Time (p_c), s		14.1		1.2		17.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay											19.9	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↖	↑↑	↑↑	↖
Traffic Volume (veh/h)	15	11	104	1064	1305	172
Future Volume (veh/h)	15	11	104	1064	1305	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1422	1422	1547	1547	1572	1572
Adj Flow Rate, veh/h	14	15	118	1209	1483	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	15	15	5	5	3	3
Cap, veh/h	43	39	140	2605	2241	
Arrive On Green	0.03	0.03	0.13	1.00	0.75	0.00
Sat Flow, veh/h	1354	1205	1474	3017	3066	1332
Grp Volume(v), veh/h	14	15	118	1209	1483	0
Grp Sat Flow(s),veh/h/ln	1354	1205	1474	1470	1494	1332
Q Serve(g_s), s	1.1	1.3	8.6	0.0	27.1	0.0
Cycle Q Clear(g_c), s	1.1	1.3	8.6	0.0	27.1	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	140	2605	2241	
V/C Ratio(X)	0.32	0.39	0.84	0.46	0.66	
Avail Cap(c_a), veh/h	326	290	208	2605	2241	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.82	1.00	0.00
Uniform Delay (d), s/veh	52.1	52.2	47.2	0.0	6.8	0.0
Incr Delay (d2), s/veh	5.1	7.5	16.5	0.5	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.8	0.9	6.6	0.3	11.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.1	59.7	63.8	0.5	8.4	0.0
LnGrp LOS	E	E	E	A	A	
Approach Vol, veh/h	29			1327	1483	
Approach Delay, s/veh	58.5			6.1	8.4	
Approach LOS	E			A	A	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.0	15.0	87.0		102.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		26.5	15.5	54.5		74.5
Max Q Clear Time (g_c+I1), s		3.3	10.6	29.1		2.0
Green Ext Time (p_c), s		0.1	0.1	16.9		20.4

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	31	152	134	25	95	71	797	100	89	1016	19
Future Volume (veh/h)	22	31	152	134	25	95	71	797	100	89	1016	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1535	1535	1535	1572	1572	1572
Adj Flow Rate, veh/h	24	34	22	146	27	30	77	866	45	97	1104	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	3	3	3
Cap, veh/h	187	85	72	253	182	152	469	992	438	538	1241	22
Arrive On Green	0.04	0.05	0.05	0.10	0.11	0.11	0.29	0.34	0.34	0.36	0.41	0.41
Sat Flow, veh/h	1509	1585	1336	1509	1585	1326	1462	2916	1287	1497	3002	54
Grp Volume(v), veh/h	24	34	22	146	27	30	77	866	45	97	549	575
Grp Sat Flow(s),veh/h/ln	1509	1585	1336	1509	1585	1326	1462	1458	1287	1497	1494	1562
Q Serve(g_s), s	2.0	2.9	1.4	12.4	2.1	1.5	0.4	39.0	2.5	6.2	47.8	47.8
Cycle Q Clear(g_c), s	2.0	2.9	1.4	12.4	2.1	1.5	0.4	39.0	2.5	6.2	47.8	47.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	187	85	72	253	182	152	469	992	438	538	617	646
V/C Ratio(X)	0.13	0.40	0.31	0.58	0.15	0.20	0.16	0.87	0.10	0.18	0.89	0.89
Avail Cap(c_a), veh/h	305	249	210	301	272	227	469	1312	579	538	768	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	58.0	64.0	24.7	53.2	55.8	14.8	35.7	43.3	17.0	30.7	38.1	38.1
Incr Delay (d2), s/veh	0.3	3.0	2.4	2.1	0.4	0.6	0.2	10.5	0.5	0.1	14.3	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	2.3	1.4	8.5	1.6	1.8	3.5	21.9	2.0	4.1	26.2	27.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	67.0	27.0	55.3	56.1	15.4	35.9	53.9	17.5	30.9	52.4	51.9
LnGrp LOS	E	E	C	E	E	B	D	D	B	C	D	D
Approach Vol, veh/h		80			203			988			1221	
Approach Delay, s/veh		53.4			49.5			50.8			50.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	55.3	52.6	19.6	12.5	45.0	62.9	11.0	21.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	63.0	63.0	19.0	22.0	7.0	72.0	17.0	24.0				
Max Q Clear Time (g_c+1/3), s	41.0	41.0	14.4	4.9	2.4	49.8	4.0	4.1				
Green Ext Time (p_c), s	0.1	6.6	0.1	0.2	0.1	8.1	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay											50.6	
HCM 6th LOS											D	

HCM 6th Signalized Intersection Summary

26: Wheaton Way (SR 303) & Sylvan Way

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	53	118	86	50	86	42	828	71	55	921	23
Future Volume (veh/h)	72	53	118	86	50	86	42	828	71	55	921	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1547	1547	1547	1585	1585	1585	1560	1560	1560	1572	1572	1572
Adj Flow Rate, veh/h	79	58	130	95	55	95	46	910	78	60	1012	25
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	5	5	2	2	2	4	4	4	3	3	3
Cap, veh/h	95	185	155	97	190	159	395	1880	837	468	1899	47
Arrive On Green	0.06	0.12	0.12	0.06	0.12	0.12	0.07	1.00	1.00	0.05	0.85	0.85
Sat Flow, veh/h	1474	1547	1298	1509	1585	1330	1485	2964	1320	1497	2979	74
Grp Volume(v), veh/h	79	58	130	95	55	95	46	910	78	60	507	530
Grp Sat Flow(s),veh/h/ln	1474	1547	1298	1509	1585	1330	1485	1482	1320	1497	1494	1559
Q Serve(g_s), s	7.4	4.8	13.7	8.8	4.4	9.5	1.5	0.0	0.0	1.9	13.2	13.2
Cycle Q Clear(g_c), s	7.4	4.8	13.7	8.8	4.4	9.5	1.5	0.0	0.0	1.9	13.2	13.2
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	95	185	155	97	190	159	395	1880	837	468	952	994
V/C Ratio(X)	0.84	0.31	0.84	0.98	0.29	0.60	0.12	0.48	0.09	0.13	0.53	0.53
Avail Cap(c_a), veh/h	95	365	306	97	374	313	438	1880	837	506	952	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	0.87	0.87	0.87
Uniform Delay (d), s/veh	64.8	56.4	60.3	65.4	56.2	58.4	8.2	0.0	0.0	7.7	4.9	4.9
Incr Delay (d2), s/veh	44.6	1.0	11.1	84.3	0.8	3.5	0.1	0.8	0.2	0.1	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.2	3.5	8.7	9.6	3.3	6.1	0.8	0.4	0.1	1.1	5.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.4	57.3	71.4	149.7	57.0	61.9	8.3	0.8	0.2	7.8	6.7	6.7
LnGrp LOS	F	E	E	F	E	E	A	A	A	A	A	A
Approach Vol, veh/h		267			245			1034			1097	
Approach Delay, s/veh		79.6			94.9			1.1			6.7	
Approach LOS		E			F			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.4	93.8	14.0	21.8	10.0	94.2	14.0	21.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	0.0	69.0	9.0	33.0	9.0	69.0	9.0	33.0				
Max Q Clear Time (g_c+13), s	0.0	2.0	10.8	15.7	3.5	15.2	9.4	11.5				
Green Ext Time (p_c), s	0.0	8.8	0.0	0.7	0.0	8.8	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay											20.0	
HCM 6th LOS											C	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘		↙	↘		↙	↘	
Traffic Volume (veh/h)	0	0	0	11	0	12	0	915	20	11	998	0
Future Volume (veh/h)	0	0	0	11	0	12	0	915	20	11	998	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.97		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	1610	1572	1572	1572	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	0	0	0	11	0	12	0	943	21	11	1029	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	3	3	1	1	1	1	1	1
Cap, veh/h	0	52	0	99	0	43	518	2566	57	571	2720	0
Arrive On Green	0.00	0.00	0.00	0.03	0.00	0.03	0.00	1.00	1.00	0.01	0.90	0.00
Sat Flow, veh/h	0	1610	0	1456	0	1314	1521	3035	68	1521	3115	0
Grp Volume(v), veh/h	0	0	0	11	0	12	0	471	493	11	1029	0
Grp Sat Flow(s),veh/h/ln	0	1610	0	1456	0	1314	1521	1518	1585	1521	1518	0
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	1.2	0.0	0.0	0.0	0.1	7.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.0	0.0	1.2	0.0	0.0	0.0	0.1	7.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	0	52	0	99	0	43	518	1283	1340	571	2720	0
V/C Ratio(X)	0.00	0.00	0.00	0.11	0.00	0.28	0.00	0.37	0.37	0.02	0.38	0.00
Avail Cap(c_a), veh/h	0	288	0	311	0	235	615	1283	1340	646	2720	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.90	0.90	0.83	0.83	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	66.0	0.0	66.1	0.0	0.0	0.0	1.1	1.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	5.0	0.0	0.7	0.7	0.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	0.0	0.0	0.7	0.0	0.9	0.0	0.5	0.5	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	66.7	0.0	71.2	0.0	0.7	0.7	1.1	1.5	0.0
LnGrp LOS	A	A	A	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		0			23			964			1040	
Approach Delay, s/veh		0.0			69.1			0.7			1.5	
Approach LOS					E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s7.1	123.4			9.5	0.0	130.5		9.5				
Change Period (Y+Rc), s 5.0	5.0			5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s 91.0	91.0			25.0	9.0	91.0		25.0				
Max Q Clear Time (g_c+1), s 2.0	2.0			0.0	0.0	9.5		3.2				
Green Ext Time (p_c), s 0.0	0.0	12.6		0.0	0.0	15.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	1.9
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary

28: Wheaton Way (SR 303) & Riddell Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	39	128	34	53	162	67	754	58	84	799	57
Future Volume (veh/h)	98	39	128	34	53	162	67	754	58	84	799	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1560	1560	1560	1560	1560	1560
Adj Flow Rate, veh/h	105	42	138	37	57	174	72	802	62	90	859	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	4	4	4
Cap, veh/h	181	233	197	150	202	171	527	1493	115	180	930	414
Arrive On Green	0.06	0.15	0.15	0.04	0.13	0.13	0.29	0.54	0.54	0.13	0.63	0.63
Sat Flow, veh/h	1509	1585	1340	1509	1585	1343	1485	2787	215	1485	2964	1318
Grp Volume(v), veh/h	105	42	138	37	57	174	72	426	438	90	859	61
Grp Sat Flow(s),veh/h/ln	1509	1585	1340	1509	1585	1343	1485	1482	1521	1485	1482	1318
Q Serve(g_s), s	0.5	2.2	5.0	2.2	3.1	9.7	0.0	17.8	17.8	4.4	24.4	1.8
Cycle Q Clear(g_c), s	0.5	2.2	5.0	2.2	3.1	9.7	0.0	17.8	17.8	4.4	24.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	181	233	197	150	202	171	527	794	815	180	930	414
V/C Ratio(X)	0.58	0.18	0.70	0.25	0.28	1.02	0.14	0.54	0.54	0.50	0.92	0.15
Avail Cap(c_a), veh/h	235	334	282	201	300	254	527	794	815	252	1092	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	0.94	0.94	0.94	0.66	0.66	0.66
Uniform Delay (d), s/veh	42.0	35.5	11.1	39.9	37.5	26.7	23.5	14.4	14.4	26.2	16.7	12.5
Incr Delay (d2), s/veh	1.8	0.2	2.8	0.6	0.6	52.1	0.1	2.4	2.4	1.1	11.5	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(95%),veh/ln	4.4	1.6	5.5	1.5	2.2	9.5	2.1	10.1	10.3	2.6	8.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	35.7	13.9	40.6	38.1	78.7	23.6	16.8	16.8	27.2	28.2	13.0
LnGrp LOS	D	D	B	D	D	F	C	B	B	C	C	B
Approach Vol, veh/h		285			268			936			1010	
Approach Delay, s/veh		28.1			64.8			17.3			27.2	
Approach LOS		C			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	34.8	10.6	17.1	11.4	55.9	8.7	19.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	32.0	35.0	9.0	18.0	11.0	37.0	7.0	20.0				
Max Q Clear Time (g_c+1/2g), s	12.0	26.4	2.5	11.7	6.4	19.8	4.2	7.0				
Green Ext Time (p_c), s	0.1	3.4	0.1	0.4	0.1	4.4	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay											27.6	
HCM 6th LOS											C	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔↔		↔	↑	↔	↔	↔	↔
Traffic Volume (veh/h)	8	573	18	113	562	22	13	31	73	34	48	15
Future Volume (veh/h)	8	573	18	113	562	22	13	31	73	34	48	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96	0.96		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	8	597	19	118	585	23	14	32	76	35	50	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	2	2	2
Cap, veh/h	42	1907	60	600	2206	87	29	272	222	203	126	40
Arrive On Green	0.65	0.65	0.65	0.11	1.00	1.00	0.02	0.17	0.17	0.11	0.11	0.11
Sat Flow, veh/h	13	2917	92	1509	2950	116	1521	1597	1301	1240	1137	364
Grp Volume(v), veh/h	327	0	297	118	298	310	14	32	76	35	0	66
Grp Sat Flow(s),veh/h/ln	1585	0	1437	1509	1506	1560	1521	1597	1301	1240	0	1501
Q Serve(g_s), s	0.0	0.0	9.9	2.6	0.0	0.0	1.0	1.9	5.7	2.8	0.0	4.5
Cycle Q Clear(g_c), s	9.8	0.0	9.9	2.6	0.0	0.0	1.0	1.9	5.7	2.8	0.0	4.5
Prop In Lane	0.02		0.06	1.00		0.07	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	1070	0	940	600	1126	1167	29	272	222	203	0	166
V/C Ratio(X)	0.31	0.00	0.32	0.20	0.26	0.27	0.48	0.12	0.34	0.17	0.00	0.40
Avail Cap(c_a), veh/h	1070	0	940	650	1126	1167	118	574	467	364	0	362
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.96	0.96	0.96	0.95	0.95	0.95	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	0.0	8.3	5.0	0.0	0.0	53.4	38.6	40.2	44.8	0.0	45.5
Incr Delay (d2), s/veh	0.7	0.0	0.9	0.2	0.6	0.5	11.5	0.2	0.9	0.4	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	0.0	5.6	1.2	0.3	0.3	0.9	1.4	3.4	1.6	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	0.0	9.2	5.1	0.6	0.5	64.9	38.8	41.1	45.2	0.0	47.1
LnGrp LOS	A	A	A	A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		624			726			122			101	
Approach Delay, s/veh		9.1			1.3			43.2			46.4	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		23.2		86.8	6.6	16.7	10.3	76.4				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		39.5		61.5	8.5	26.5	9.5	47.5				
Max Q Clear Time (g_c+I1), s		7.7		2.0	3.0	6.5	4.6	11.9				
Green Ext Time (p_c), s		0.4		4.3	0.0	0.4	0.1	4.3				
Intersection Summary												
HCM 6th Ctrl Delay											10.5	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

31: Naval Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗			↕	
Traffic Volume (veh/h)	5	636	10	30	666	9	11	21	140	15	44	27
Future Volume (veh/h)	5	636	10	30	666	9	11	21	140	15	44	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1547	1547	1547	1560	1560	1560	1572	1572	1572	1547	1547	1547
Adj Flow Rate, veh/h	5	669	11	32	701	9	12	22	147	16	46	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	4	4	4	3	3	3	5	5	5
Cap, veh/h	11	2013	33	51	2116	27	25	29	193	49	75	39
Arrive On Green	0.00	0.22	0.22	0.07	1.00	1.00	0.02	0.16	0.16	0.11	0.11	0.11
Sat Flow, veh/h	1474	2960	49	1485	2995	38	1497	177	1181	104	706	366
Grp Volume(v), veh/h	5	332	348	32	347	363	12	0	169	90	0	0
Grp Sat Flow(s),veh/h/ln	1474	1470	1538	1485	1482	1552	1497	0	1357	1176	0	0
Q Serve(g_s), s	0.4	20.8	20.8	2.3	0.0	0.0	0.9	0.0	13.1	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	20.8	20.8	2.3	0.0	0.0	0.9	0.0	13.1	8.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	1.00		0.87	0.18		0.31
Lane Grp Cap(c), veh/h	11	1000	1046	51	1047	1096	25	0	222	163	0	0
V/C Ratio(X)	0.44	0.33	0.33	0.63	0.33	0.33	0.48	0.00	0.76	0.55	0.00	0.00
Avail Cap(c_a), veh/h	141	1000	1046	115	1047	1096	116	0	512	376	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.95	0.95	0.90	0.90	0.90	0.99	0.00	0.99	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.6	21.7	21.7	50.6	0.0	0.0	53.6	0.0	44.0	47.4	0.0	0.0
Incr Delay (d2), s/veh	23.3	0.8	0.8	11.2	0.8	0.7	13.3	0.0	5.3	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.4	13.0	13.5	1.8	0.4	0.4	0.8	0.0	8.3	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.9	22.6	22.5	61.8	0.8	0.7	66.9	0.0	49.3	50.4	0.0	0.0
LnGrp LOS	E	C	C	E	A	A	E	A	D	D	A	A
Approach Vol, veh/h		685			742			181			90	
Approach Delay, s/veh		23.0			3.4			50.5			50.4	
Approach LOS		C			A			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	8.2	79.3	6.3	16.1	5.4	82.2		22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5	46.5	8.5	28.5	10.5	44.5		41.5				
Max Q Clear Time (g_c+1/3), s	14.3	22.8	2.9	10.7	2.4	2.0		15.1				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.4	0.0	5.1		1.1				
Intersection Summary												
HCM 6th Ctrl Delay											18.8	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

32: High Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	83	700	1	6	622	8	19	32	10	39	10	55
Future Volume (veh/h)	83	700	1	6	622	8	19	32	10	39	10	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1522	1522	1522	1560	1560	1560	1610	1610	1610	1572	1572	1572
Adj Flow Rate, veh/h	99	833	1	7	740	10	23	38	12	46	12	65
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	7	7	7	4	4	4	0	0	0	3	3	3
Cap, veh/h	417	1955	2	482	1851	25	42	103	33	62	21	116
Arrive On Green	0.10	1.00	1.00	0.00	0.20	0.20	0.03	0.09	0.09	0.04	0.10	0.10
Sat Flow, veh/h	1450	2964	4	1485	2994	40	1533	1162	367	1497	210	1138
Grp Volume(v), veh/h	99	406	428	7	366	384	23	0	50	46	0	77
Grp Sat Flow(s),veh/h/ln	1450	1446	1521	1485	1482	1552	1533	0	1529	1497	0	1348
Q Serve(g_s), s	2.6	0.0	0.0	0.2	23.6	23.6	1.6	0.0	3.4	3.3	0.0	6.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.2	23.6	23.6	1.6	0.0	3.4	3.3	0.0	6.0
Prop In Lane	1.00		0.00	1.00		0.03	1.00		0.24	1.00		0.84
Lane Grp Cap(c), veh/h	417	954	1004	482	916	960	42	0	135	62	0	138
V/C Ratio(X)	0.24	0.43	0.43	0.01	0.40	0.40	0.54	0.00	0.37	0.75	0.00	0.56
Avail Cap(c_a), veh/h	454	954	1004	567	916	960	105	0	368	102	0	325
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	0.0	0.0	7.7	26.1	26.1	52.8	0.0	47.2	52.2	0.0	47.0
Incr Delay (d2), s/veh	0.3	1.3	1.3	0.0	1.3	1.2	10.5	0.0	1.7	16.2	0.0	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(95%),veh/ln	1.3	0.6	0.6	0.1	14.7	15.3	1.4	0.0	2.5	2.8	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	1.3	1.3	7.7	27.4	27.3	63.3	0.0	48.9	68.4	0.0	50.5
LnGrp LOS	A	A	A	A	C	C	E	A	D	E	A	D
Approach Vol, veh/h		933			757			73			123	
Approach Delay, s/veh		2.1			27.2			53.4			57.2	
Approach LOS		A			C			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	15.2	6.7	78.1	8.5	16.7	11.2	73.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5	26.5	7.5	46.5	7.5	26.5	8.5	45.5				
Max Q Clear Time (g_c+1/3), s	5	5.4	2.2	2.0	3.6	8.0	4.6	25.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	6.3	0.0	0.3	0.1	4.7				

Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
 33: Park Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	251	71	12	205	8	18	18	7	8	32	12
Future Volume (veh/h)	23	251	71	12	205	8	18	18	7	8	32	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.98		0.98	0.97		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1560	1560	1547	1547	1547	1547	1547	1547	1585	1585	1585
Adj Flow Rate, veh/h	27	292	83	14	238	9	21	21	8	9	37	14
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	5	5	5	5	5	5	2	2	2
Cap, veh/h	60	496	420	33	444	17	275	169	218	184	237	226
Arrive On Green	0.04	0.32	0.32	0.02	0.30	0.30	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1485	1560	1320	1474	1481	56	465	994	1281	164	1392	1325
Grp Volume(v), veh/h	27	292	83	14	0	247	42	0	8	46	0	14
Grp Sat Flow(s),veh/h/ln	1485	1560	1320	1474	0	1537	1459	0	1281	1556	0	1325
Q Serve(g_s), s	0.5	4.3	1.3	0.3	0.0	3.7	0.0	0.0	0.1	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.5	4.3	1.3	0.3	0.0	3.7	0.6	0.0	0.1	0.7	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.04	0.50		1.00	0.20		1.00
Lane Grp Cap(c), veh/h	60	496	420	33	0	461	444	0	218	421	0	226
V/C Ratio(X)	0.45	0.59	0.20	0.43	0.00	0.54	0.09	0.00	0.04	0.11	0.00	0.06
Avail Cap(c_a), veh/h	1104	2007	1698	1095	0	1977	1254	0	952	1298	0	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	7.9	6.8	13.3	0.0	8.1	9.8	0.0	9.6	9.8	0.0	9.6
Incr Delay (d2), s/veh	5.1	1.1	0.2	8.7	0.0	1.0	0.1	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.4	1.8	0.4	0.3	0.0	1.5	0.3	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	9.0	7.1	22.0	0.0	9.0	9.9	0.0	9.6	9.9	0.0	9.7
LnGrp LOS	B	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		402			261			50			60	
Approach Delay, s/veh		9.2			9.7			9.8			9.9	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.2	5.1	13.3		9.2	5.6	12.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	20.5	35.5		20.5	20.5	35.5				
Max Q Clear Time (g_c+I1), s		2.6	2.3	6.3		2.7	2.5	5.7				
Green Ext Time (p_c), s		0.2	0.0	2.1		0.2	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay				9.5								
HCM 6th LOS				A								

MOVEMENT SUMMARY

Site: 34 [Washington Ave & Manette Bridge (Site Folder: 2030 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

NA
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: Washington Ave (NB)															
8	T1	All MCs	85	9.0	85	9.0	0.294	3.4	LOS A	1.5	41.1	0.43	0.47	0.43	23.8
18	R2	All MCs	216	9.0	216	9.0	0.294	3.8	LOS A	1.5	41.1	0.43	0.47	0.43	25.4
Approach			301	9.0	301	9.0	0.294	3.7	LOS A	1.5	41.1	0.43	0.47	0.43	24.9
East: Manette Bridge (WB)															
1	L2	All MCs	422	3.0	422	3.0	0.491	7.2	LOS A	2.9	73.6	0.29	0.55	0.29	24.9
16	R2	All MCs	185	3.0	185	3.0	0.491	3.9	LOS A	2.9	73.6	0.29	0.55	0.29	25.0
Approach			607	3.0	607	3.0	0.491	6.2	LOS A	2.9	73.6	0.29	0.55	0.29	24.9
North: Washington Ave (SB)															
7	L2	All MCs	226	5.0	226	5.0	0.290	7.9	LOS A	1.5	39.2	0.55	0.64	0.55	24.5
4	T1	All MCs	46	5.0	46	5.0	0.290	4.3	LOS A	1.5	39.2	0.55	0.64	0.55	23.0
Approach			272	5.0	272	5.0	0.290	7.3	LOS A	1.5	39.2	0.55	0.64	0.55	24.2
All Vehicles			1180	5.0	1180	5.0	0.491	5.8	LOS A	2.9	73.6	0.38	0.55	0.38	24.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:50:18 PM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSD Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan #554-1896-192\LOS\2030 Baseline.sip9

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↕			↖	↗		↕	
Traffic Volume (veh/h)	3	47	4	663	0	16	1	119	879	16	249	0
Future Volume (veh/h)	3	47	4	663	0	16	1	119	879	16	249	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	1572	1572	1572	1560	1560	1560	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	3	51	4	737	0	0	1	129	955	17	271	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	30	513	40	851	447	0	39	308	1137	56	533	0
Arrive On Green	0.38	0.38	0.38	0.29	0.00	0.00	0.19	0.19	0.19	0.19	0.19	0.00
Sat Flow, veh/h	80	1362	107	2971	1560	0	2	1582	2364	72	2807	0
Grp Volume(v), veh/h	58	0	0	737	0	0	130	0	955	152	136	0
Grp Sat Flow(s),veh/h/ln	1549	0	0	1485	1560	0	1584	0	1182	1437	1370	0
Q Serve(g_s), s	2.3	0.0	0.0	22.4	0.0	0.0	0.0	0.0	18.5	0.0	8.4	0.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	22.4	0.0	0.0	6.8	0.0	18.5	8.1	8.4	0.0
Prop In Lane	0.05		0.07	1.00		0.00	0.01		1.00	0.11		0.00
Lane Grp Cap(c), veh/h	583	0	0	851	447	0	347	0	1137	322	267	0
V/C Ratio(X)	0.10	0.00	0.00	0.87	0.00	0.00	0.38	0.00	0.84	0.47	0.51	0.00
Avail Cap(c_a), veh/h	583	0	0	1345	706	0	347	0	1137	322	267	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.96	0.00	0.00	1.00	0.00	1.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	19.2	0.0	0.0	32.2	0.0	0.0	33.6	0.0	17.6	34.1	34.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	11.1	0.0	0.0	1.0	0.0	6.0	1.2	1.7	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	0.0	14.1	0.0	0.0	4.8	0.0	17.9	5.8	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	0.0	0.0	43.3	0.0	0.0	34.5	0.0	23.5	35.2	35.9	0.0
LnGrp LOS	B	A	A	D	A	A	C	A	C	D	D	A
Approach Vol, veh/h		58		737			1085		288			
Approach Delay, s/veh		19.2		43.3			24.9		35.5			
Approach LOS		B		D			C		D			
Timer - Assigned Phs		2		4		6	8					
Phs Duration (G+Y+Rc), s		23.0		40.3		23.0	31.7					
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5					
Max Green Setting (Gmax), s		18.5		20.0		18.5	43.0					
Max Q Clear Time (g_c+I1), s		20.5		4.3		10.4	24.4					
Green Ext Time (p_c), s		0.0		0.2		1.4	2.8					

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	27	919	2	0	613	7	9	4	35	78	4	50
Future Volume (veh/h)	27	919	2	0	613	7	9	4	35	78	4	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1560	1560	1560	1447	1447	1447	1535	1535	1535
Adj Flow Rate, veh/h	29	978	2	0	652	7	10	4	37	83	4	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	4	4	4	13	13	13	6	6	6
Cap, veh/h	79	2263	5	0	2329	25	63	29	123	156	14	67
Arrive On Green	1.00	1.00	1.00	0.00	0.78	0.78	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	50	2919	6	0	3081	32	134	225	948	734	109	513
Grp Volume(v), veh/h	521	0	488	0	322	337	51	0	0	140	0	0
Grp Sat Flow(s),veh/h/ln	1533	0	1441	0	1482	1554	1307	0	0	1356	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.9	5.9	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.9	5.9	3.4	0.0	0.0	9.4	0.0	0.0
Prop In Lane	0.06		0.00	0.00		0.02	0.20		0.73	0.59		0.38
Lane Grp Cap(c), veh/h	1228	0	1117	0	1149	1205	215	0	0	237	0	0
V/C Ratio(X)	0.42	0.00	0.44	0.00	0.28	0.28	0.24	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	1228	0	1117	0	1149	1205	347	0	0	377	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.86	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	3.1	3.1	37.5	0.0	0.0	39.9	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.1	0.0	0.6	0.6	0.7	0.0	0.0	2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.0	0.6	0.0	2.8	2.9	2.0	0.0	0.0	6.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.9	0.0	1.1	0.0	3.7	3.6	38.1	0.0	0.0	42.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1009			659			51			140	
Approach Delay, s/veh		1.0			3.7			38.1			42.8	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.8		78.2		16.8		78.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		22.5		63.5		22.5		63.5				
Max Q Clear Time (g_c+I1), s		5.4		2.0		11.4		7.9				
Green Ext Time (p_c), s		0.2		20.3		0.6		10.5				
Intersection Summary												
HCM 6th Ctrl Delay					6.1							
HCM 6th LOS					A							

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	825	79	104	576	19	21	30	9	28	202	94
Future Volume (veh/h)	85	825	79	104	576	19	21	30	9	28	202	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1572	1572	1572	1572	1572	1572	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	88	851	81	107	594	20	22	31	9	29	208	97
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	111	1181	112	137	1315	44	45	294	242	56	308	257
Arrive On Green	0.07	0.43	0.43	0.09	0.45	0.45	0.03	0.19	0.19	0.04	0.19	0.19
Sat Flow, veh/h	1497	2755	262	1497	2949	99	1509	1585	1304	1521	1597	1332
Grp Volume(v), veh/h	88	461	471	107	301	313	22	31	9	29	208	97
Grp Sat Flow(s),veh/h/ln	1497	1494	1523	1497	1494	1554	1509	1585	1304	1521	1597	1332
Q Serve(g_s), s	4.0	17.9	17.9	4.9	9.8	9.8	1.0	1.1	0.4	1.3	8.5	4.4
Cycle Q Clear(g_c), s	4.0	17.9	17.9	4.9	9.8	9.8	1.0	1.1	0.4	1.3	8.5	4.4
Prop In Lane	1.00		0.17	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	641	653	137	666	693	45	294	242	56	308	257
V/C Ratio(X)	0.79	0.72	0.72	0.78	0.45	0.45	0.49	0.11	0.04	0.52	0.68	0.38
Avail Cap(c_a), veh/h	760	1612	1644	974	1612	1678	982	1031	848	555	1039	866
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	31.8	16.5	16.5	31.1	13.4	13.5	33.4	23.7	23.4	33.1	26.2	24.6
Incr Delay (d2), s/veh	14.0	1.9	1.8	11.1	0.6	0.6	9.6	0.2	0.1	8.6	3.1	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(95%),veh/ln	3.4	10.0	10.1	3.9	5.7	5.9	0.9	0.8	0.2	1.1	6.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	18.4	18.3	42.2	14.0	14.0	43.0	23.8	23.4	41.6	29.3	25.7
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1020			721			62			334	
Approach Delay, s/veh		20.7			18.2			30.6			29.3	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	17.5	10.9	34.5	6.6	18.0	9.7	35.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax)	25.5	45.5	45.5	75.5	45.5	45.5	35.5	75.5				
Max Q Clear Time (g_c+1)	13.3	3.1	6.9	19.9	3.0	10.5	6.0	11.8				
Green Ext Time (p_c), s	0.1	0.2	0.4	10.1	0.1	2.1	0.3	5.7				
Intersection Summary												
HCM 6th Ctrl Delay											21.5	
HCM 6th LOS											C	

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

07/01/2024

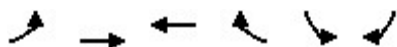


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔			↔			↔	
Traffic Volume (veh/h)	8	797	21	7	618	0	44	5	8	9	14	3
Future Volume (veh/h)	8	797	21	7	618	0	44	5	8	9	14	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.87		0.91	0.93		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1535	1535	1535	1560	1560	1560	1610	1610	1610
Adj Flow Rate, veh/h	9	848	22	7	657	0	47	5	9	10	15	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	6	6	6	4	4	4	0	0	0
Cap, veh/h	39	2252	58	34	1195	0	180	20	25	98	126	22
Arrive On Green	0.79	0.79	0.79	0.79	0.79	0.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	11	2868	74	5	1522	0	910	142	182	408	901	157
Grp Volume(v), veh/h	461	0	418	664	0	0	61	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1549	0	1404	1527	0	0	1234	0	0	1466	0	0
Q Serve(g_s), s	0.0	0.0	10.9	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.8	0.0	10.9	19.7	0.0	0.0	5.2	0.0	0.0	1.9	0.0	0.0
Prop In Lane	0.02		0.05	0.01		0.00	0.77		0.15	0.36		0.11
Lane Grp Cap(c), veh/h	1247	0	1103	1230	0	0	225	0	0	246	0	0
V/C Ratio(X)	0.37	0.00	0.38	0.54	0.00	0.00	0.27	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	1247	0	1103	1230	0	0	314	0	0	350	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.00	0.72	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	3.9	4.9	0.0	0.0	46.5	0.0	0.0	45.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	1.7	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.6	0.0	5.2	9.8	0.0	0.0	3.0	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.5	0.0	4.7	6.6	0.0	0.0	46.8	0.0	0.0	45.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		879			664			61			28	
Approach Delay, s/veh		4.6			6.6			46.8			45.3	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		98.7		21.3		98.7		21.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		85.5		25.5		85.5		25.5				
Max Q Clear Time (g_c+I1), s		12.9		3.9		21.7		7.2				
Green Ext Time (p_c), s		11.6		0.1		9.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay					7.7							
HCM 6th LOS					A							

HCM 6th Signalized Intersection Summary

40: Burwell St (SR 304) & Park Ave

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑
Traffic Volume (veh/h)	60	355	173	6	19	22
Future Volume (veh/h)	60	355	173	6	19	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1497	1497	1572	1572	1522	1522
Adj Flow Rate, veh/h	61	362	177	6	19	22
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	9	3	3	7	7
Cap, veh/h	350	969	1141	39	52	60
Arrive On Green	0.39	0.39	0.39	0.39	0.08	0.08
Sat Flow, veh/h	217	2571	3026	99	614	711
Grp Volume(v), veh/h	235	188	89	94	42	0
Grp Sat Flow(s),veh/h/ln	1425	1294	1494	1553	1358	0
Q Serve(g_s), s	0.0	1.8	0.7	0.7	0.5	0.0
Cycle Q Clear(g_c), s	1.9	1.8	0.7	0.7	0.5	0.0
Prop In Lane	0.26			0.06	0.45	0.52
Lane Grp Cap(c), veh/h	818	501	578	601	115	0
V/C Ratio(X)	0.29	0.37	0.15	0.16	0.37	0.00
Avail Cap(c_a), veh/h	3966	3456	3989	4147	2032	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.8	3.7	3.4	3.4	7.4	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.1	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.2	0.1	0.1	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.9	4.1	3.5	3.5	8.8	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		423	183		42	
Approach Delay, s/veh		4.0	3.5		8.8	
Approach LOS		A	A		A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.1		5.9		11.1
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		45.5		25.5		45.5
Max Q Clear Time (g_c+I1), s		3.9		2.5		2.7
Green Ext Time (p_c), s		2.4		0.1		0.9
Intersection Summary						
HCM 6th Ctrl Delay			4.2			
HCM 6th LOS			A			

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔						↔	
Traffic Volume (veh/h)	15	131	240	88	149	12	0	0	0	14	142	7
Future Volume (veh/h)	15	131	240	88	149	12	0	0	0	14	142	7
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.88	0.95		0.99				1.00		0.75
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1472	1472	1472	1497	1497	1497				1547	1547	1547
Adj Flow Rate, veh/h	17	149	273	100	169	14				16	161	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	11	11	11	9	9	9				5	5	5
Cap, veh/h	135	610	480	278	377	27				44	443	22
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43				0.34	0.34	0.34
Sat Flow, veh/h	52	1403	1104	321	867	62				130	1309	65
Grp Volume(v), veh/h	166	0	273	283	0	0				185	0	0
Grp Sat Flow(s),veh/h/ln1455	0	1104	1250	0	0	0				1504	0	0
Q Serve(g_s), s	0.0	0.0	6.5	1.6	0.0	0.0				3.3	0.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	6.5	5.1	0.0	0.0				3.3	0.0	0.0
Prop In Lane	0.10		1.00	0.35		0.05				0.09		0.04
Lane Grp Cap(c), veh/h	745	0	480	682	0	0				509	0	0
V/C Ratio(X)	0.22	0.00	0.57	0.42	0.00	0.00				0.36	0.00	0.00
Avail Cap(c_a), veh/h	1985	0	1440	1708	0	0				1323	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	0.0	7.5	7.0	0.0	0.0				8.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.1	0.4	0.0	0.0				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln1.0	0.0	0.0	2.1	1.9	0.0	0.0				1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	0.0	8.5	7.4	0.0	0.0				9.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				A	A	A
Approach Vol, veh/h		439			283						185	
Approach Delay, s/veh		7.8			7.4						9.2	
Approach LOS		A			A						A	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		19.3		15.9		19.3						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		46.0		31.0		46.0						
Max Q Clear Time (g_c+I1), s		8.5		5.3		7.1						
Green Ext Time (p_c), s		2.4		1.1		2.4						
Intersection Summary												
HCM 6th Ctrl Delay											8.0	
HCM 6th LOS											A	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔↔			↔	
Traffic Volume (veh/h)	66	1	0	0	3	1	79	123	0	0	0	201
Future Volume (veh/h)	66	1	0	0	3	1	79	123	0	0	0	201
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1610	1610	1434	1434	1434	1459	1459	1459
Adj Flow Rate, veh/h	73	1	0	0	3	1	87	135	0	0	0	221
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	0	0	0	0	14	14	14	12	12	12
Cap, veh/h	139	2	0	0	8	3	452	659	0	0	0	501
Arrive On Green	0.09	0.09	0.00	0.00	0.01	0.01	0.43	0.43	0.00	0.00	0.00	0.43
Sat Flow, veh/h	1490	20	0	0	1155	385	550	1605	0	0	0	1169
Grp Volume(v), veh/h	74	0	0	0	0	4	120	102	0	0	0	221
Grp Sat Flow(s),veh/h/ln	1510	0	0	0	0	1539	849	1240	0	0	0	1169
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.1	1.4	1.5	0.0	0.0	0.0	3.8
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.0	0.0	0.1	5.2	1.5	0.0	0.0	0.0	3.8
Prop In Lane	0.99		0.00	0.00		0.25	0.72		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	141	0	0	0	0	10	581	531	0	0	0	501
V/C Ratio(X)	0.53	0.00	0.00	0.00	0.00	0.40	0.21	0.19	0.00	0.00	0.00	0.44
Avail Cap(c_a), veh/h	1346	0	0	0	0	834	2249	2405	0	0	0	2268
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	0.0	0.0	14.2	6.3	5.1	0.0	0.0	0.0	5.8
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.0	0.0	9.0	0.2	0.2	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.0	0.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	0.0	0.0	0.0	23.2	6.5	5.3	0.0	0.0	0.0	6.5
LnGrp LOS	B	A	A	A	A	C	A	A	A	A	A	A
Approach Vol, veh/h		74			4			222				221
Approach Delay, s/veh		14.6			23.2			5.9				6.5
Approach LOS		B			C			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.8		7.2		16.8		4.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		25.5		55.5		15.5				
Max Q Clear Time (g_c+I1), s		7.2		3.3		5.8		2.1				
Green Ext Time (p_c), s		2.0		0.3		2.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												7.5
HCM 6th LOS												A

HCM 6th Signalized Intersection Summary
 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	170	19	83	13	29	3	923	0	85	666	1
Future Volume (veh/h)	39	170	19	83	13	29	3	923	0	85	666	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1522	1522	1522	1585	1585	0	1585	1585	1585
Adj Flow Rate, veh/h	41	177	20	86	14	0	3	961	0	89	694	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	7	7	7	2	2	0	2	2	2
Cap, veh/h	72	271	226	208	303		7	1256	0	113	1503	2
Arrive On Green	0.05	0.17	0.17	0.07	0.20	0.00	0.00	0.42	0.00	0.07	0.49	0.49
Sat Flow, veh/h	1485	1560	1303	2812	1522	1290	1509	3091	0	1509	3085	4
Grp Volume(v), veh/h	41	177	20	86	14	0	3	961	0	89	339	356
Grp Sat Flow(s),veh/h/ln	1485	1560	1303	1406	1522	1290	1509	1506	0	1509	1506	1584
Q Serve(g_s), s	1.7	6.7	0.8	1.9	0.5	0.0	0.1	17.3	0.0	3.7	9.4	9.4
Cycle Q Clear(g_c), s	1.7	6.7	0.8	1.9	0.5	0.0	0.1	17.3	0.0	3.7	9.4	9.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	72	271	226	208	303		7	1256	0	113	733	772
V/C Ratio(X)	0.57	0.65	0.09	0.41	0.05		0.41	0.77	0.00	0.79	0.46	0.46
Avail Cap(c_a), veh/h	1313	689	576	710	384		381	4064	0	381	2032	2138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	24.4	22.0	28.0	20.5	0.0	31.4	15.8	0.0	28.8	10.8	10.8
Incr Delay (d2), s/veh	6.8	2.7	0.2	1.3	0.1	0.0	12.9	0.7	0.0	4.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	4.6	0.5	1.2	0.3	0.0	0.1	9.1	0.0	2.5	4.9	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	27.0	22.1	29.3	20.6	0.0	44.3	16.6	0.0	33.3	11.1	11.1
LnGrp LOS	D	C	C	C	C		D	B	A	C	B	B
Approach Vol, veh/h		238			100			964			784	
Approach Delay, s/veh		28.2			28.1			16.6			13.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.3	35.4	8.7	15.0	8.7	30.9	7.1	16.6				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.0	4.0	4.5	4.0	4.0				
Max Green Setting (Gmax), s	16.0	85.5	16.0	28.0	16.0	85.5	56.0	16.0				
Max Q Clear Time (g_c+1/2), s	11.4	11.4	3.9	8.7	5.7	19.3	3.7	2.5				
Green Ext Time (p_c), s	0.0	3.9	0.2	1.0	0.1	7.1	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

45: Charleston Blvd (SR 304) & Charleston Beach Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↕		↙	↕	↙	↕	↕	↕
Traffic Volume (veh/h)	23	22	14	8	1	7	12	1179	67	19	795	17
Future Volume (veh/h)	23	22	14	8	1	7	12	1179	67	19	795	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1572	1572	1572	1447	1447	1447	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	24	23	15	8	1	7	13	1241	71	20	837	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	13	13	13	2	2	2	2	2	2
Cap, veh/h	36	34	22	41	5	33	29	1816	810	42	2458	53
Arrive On Green	0.06	0.06	0.06	0.03	0.03	0.03	0.02	0.60	0.60	0.03	0.61	0.61
Sat Flow, veh/h	572	548	357	1378	155	1087	1509	3011	1343	1509	4019	86
Grp Volume(v), veh/h	62	0	0	8	0	8	13	1241	71	20	528	327
Grp Sat Flow(s),veh/h/ln	1477	0	0	1378	0	1243	1509	1506	1343	1509	1268	1569
Q Serve(g_s), s	2.7	0.0	0.0	0.4	0.0	0.4	0.6	18.1	1.4	0.8	6.6	6.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.4	0.0	0.4	0.6	18.1	1.4	0.8	6.6	6.7
Prop In Lane	0.39		0.24	1.00		0.88	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	92	0	0	41	0	37	29	1816	810	42	1551	960
V/C Ratio(X)	0.68	0.00	0.00	0.19	0.00	0.21	0.45	0.68	0.09	0.47	0.34	0.34
Avail Cap(c_a), veh/h	363	0	0	1388	0	1252	360	3937	1756	360	3315	2052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	0.0	30.8	0.0	30.8	31.5	8.7	5.4	31.1	6.2	6.2
Incr Delay (d2), s/veh	8.3	0.0	0.0	1.7	0.0	2.1	3.9	0.7	0.1	3.0	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.0	0.2	0.0	0.3	0.4	7.2	0.5	0.6	2.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	0.0	0.0	32.4	0.0	32.9	35.5	9.4	5.5	34.2	6.4	6.5
LnGrp LOS	D	A	A	C	A	C	D	A	A	C	A	A
Approach Vol, veh/h		62			16			1325			875	
Approach Delay, s/veh		38.2			32.7			9.4			7.1	
Approach LOS		D			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	44.8		6.5	6.3	44.2		8.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0				
Max Green Setting (Gmax), s	15.5	85.0		65.5	15.5	85.0		16.0				
Max Q Clear Time (g_c+1), s	12.6	8.7		2.4	2.8	20.1		4.7				
Green Ext Time (p_c), s	0.0	10.5		0.0	0.0	19.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

46: Union Ave/Auto Center Blvd & Werner Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Traffic Volume (veh/h)	4	155	3	67	115	105	8	41	118	35	20	4
Future Volume (veh/h)	4	155	3	67	115	105	8	41	118	35	20	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1409	1409	1409	1510	1510	1510	1560	1560	1560	1497	1497	1497
Adj Flow Rate, veh/h	5	180	3	78	134	122	9	48	0	41	23	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	16	16	16	8	8	8	4	4	4	9	9	9
Cap, veh/h	11	382	6	141	227	207	422	210		399	161	35
Arrive On Green	0.01	0.28	0.28	0.10	0.31	0.31	0.13	0.13	0.00	0.13	0.13	0.13
Sat Flow, veh/h	1342	1382	23	1438	728	663	1360	1560	1322	1282	1191	259
Grp Volume(v), veh/h	5	0	183	78	0	256	9	48	0	41	0	28
Grp Sat Flow(s),veh/h/ln	1342	0	1405	1438	0	1390	1360	1560	1322	1282	0	1450
Q Serve(g_s), s	0.1	0.0	3.0	1.4	0.0	4.3	0.2	0.8	0.0	0.8	0.0	0.5
Cycle Q Clear(g_c), s	0.1	0.0	3.0	1.4	0.0	4.3	0.6	0.8	0.0	1.6	0.0	0.5
Prop In Lane	1.00		0.02	1.00		0.48	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	11	0	388	141	0	433	422	210		399	0	196
V/C Ratio(X)	0.46	0.00	0.47	0.55	0.00	0.59	0.02	0.23		0.10	0.00	0.14
Avail Cap(c_a), veh/h	1195	0	2273	1620	0	1820	1524	1474		1671	0	1635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	8.3	11.8	0.0	8.0	10.8	10.6	0.0	11.3	0.0	10.5
Incr Delay (d2), s/veh	36.8	0.0	1.3	4.8	0.0	1.8	0.0	0.8	0.0	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.2	0.0	1.2	0.9	0.0	1.6	0.1	0.4	0.0	0.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	9.5	16.6	0.0	9.8	10.8	11.4	0.0	11.5	0.0	11.1
LnGrp LOS	D	A	A	B	A	A	B	B		B	A	B
Approach Vol, veh/h		188			334			57			69	
Approach Delay, s/veh		10.6			11.4			11.3			11.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	14.1		7.7	6.7	13.1		7.7				
Change Period (Y+Rc), s	5.5	* 5.5		4.0	4.0	5.5		4.0				
Max Green Setting (Gmax), s	24.5	* 36		26.0	31.0	44.5		31.0				
Max Q Clear Time (g_c+1/2), s	12.5	6.3		2.8	3.4	5.0		3.6				
Green Ext Time (p_c), s	0.0	2.3		0.3	0.3	1.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↖	↖	↖		↖	↖	
Traffic Volume (veh/h)	7	305	11	69	398	150	10	6	113	67	8	30
Future Volume (veh/h)	7	305	11	69	398	150	10	6	113	67	8	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1522	1522	1522	1510	1510	1510	1522	1522	1522	1346	1346	1346
Adj Flow Rate, veh/h	8	332	12	75	433	0	11	7	0	73	9	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	8	8	8	7	7	7	21	21	21
Cap, veh/h	19	808	29	137	1051		423	186		407	165	
Arrive On Green	0.01	0.28	0.28	0.10	0.37	0.00	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1450	2847	103	1438	2868	1279	1347	1522	0	1194	1346	0
Grp Volume(v), veh/h	8	168	176	75	433	0	11	7	0	73	9	0
Grp Sat Flow(s),veh/h/ln	1450	1446	1503	1438	1434	1279	1347	1522	0	1194	1346	0
Q Serve(g_s), s	0.1	2.6	2.6	1.3	3.1	0.0	0.2	0.1	0.0	1.6	0.2	0.0
Cycle Q Clear(g_c), s	0.1	2.6	2.6	1.3	3.1	0.0	0.4	0.1	0.0	1.7	0.2	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	19	410	427	137	1051		423	186		407	165	
V/C Ratio(X)	0.43	0.41	0.41	0.55	0.41		0.03	0.04		0.18	0.05	
Avail Cap(c_a), veh/h	562	2162	2247	1618	6405		1774	1714		1605	1516	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.3	7.9	7.9	11.7	6.4	0.0	10.7	10.5	0.0	11.2	10.5	0.0
Incr Delay (d2), s/veh	20.4	0.9	0.9	4.7	0.3	0.0	0.1	0.2	0.0	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	1.0	1.0	0.9	0.8	0.0	0.1	0.1	0.0	0.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	8.8	8.8	16.4	6.7	0.0	10.7	10.7	0.0	11.7	10.8	0.0
LnGrp LOS	C	A	A	B	A		B	B		B	B	
Approach Vol, veh/h		352			508			18			82	
Approach Delay, s/veh		9.4			8.2			10.7			11.6	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	14.4		7.8	7.1	12.2		7.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.5	60.5		30.5	30.5	40.5		30.5				
Max Q Clear Time (g_c+1/2), s	5.1	5.1		2.4	3.3	4.6		3.7				
Green Ext Time (p_c), s	0.0	3.8		0.1	0.3	3.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary

48: National Ave & Loxie Eagans Blvd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	223	82	6	107	2	108	55	9	10	29	188
Future Volume (veh/h)	253	223	82	6	107	2	108	55	9	10	29	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1535	1535	1535	1560	1560	1560	1547	1547	1547
Adj Flow Rate, veh/h	253	225	83	6	108	2	109	56	9	10	29	190
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	6	6	6	4	4	4	5	5	5
Cap, veh/h	298	662	236	14	353	7	144	74	190	71	207	238
Arrive On Green	0.20	0.31	0.31	0.01	0.12	0.12	0.14	0.14	0.14	0.18	0.18	0.18
Sat Flow, veh/h	1485	2125	758	1462	2929	54	997	512	1319	392	1136	1309
Grp Volume(v), veh/h	253	155	153	6	54	56	165	0	9	39	0	190
Grp Sat Flow(s),veh/h/ln	1485	1482	1401	1462	1458	1525	1510	0	1319	1528	0	1309
Q Serve(g_s), s	8.4	4.1	4.3	0.2	1.7	1.7	5.4	0.0	0.3	1.1	0.0	7.1
Cycle Q Clear(g_c), s	8.4	4.1	4.3	0.2	1.7	1.7	5.4	0.0	0.3	1.1	0.0	7.1
Prop In Lane	1.00		0.54	1.00		0.04	0.66		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	298	462	437	14	176	184	217	0	190	278	0	238
V/C Ratio(X)	0.85	0.33	0.35	0.43	0.31	0.31	0.76	0.00	0.05	0.14	0.00	0.80
Avail Cap(c_a), veh/h	364	1220	1154	172	1015	1061	503	0	440	509	0	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	13.5	13.6	25.1	20.5	20.5	21.0	0.0	18.8	17.5	0.0	20.0
Incr Delay (d2), s/veh	14.5	0.4	0.5	19.3	1.0	0.9	5.4	0.0	0.1	0.2	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	2.2	2.2	0.3	1.0	1.1	3.7	0.0	0.2	0.7	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	13.9	14.1	44.4	21.4	21.4	26.3	0.0	18.9	17.7	0.0	26.0
LnGrp LOS	C	B	B	D	C	C	C	A	B	B	A	C
Approach Vol, veh/h		561			116			174			229	
Approach Delay, s/veh		23.1			22.6			25.9			24.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	20.4		13.8	14.7	10.6		11.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	42.0	42.0		17.0	12.5	35.5		17.0				
Max Q Clear Time (g_c+1/2), s	12.2	6.3		9.1	10.4	3.7		7.4				
Green Ext Time (p_c), s	0.0	1.9		0.5	0.2	0.6		0.6				

Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection

Intersection Delay, s/veh 8.5
 Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑			↑
Traffic Vol, veh/h	67	5	115	0	0	96
Future Vol, veh/h	67	5	115	0	0	96
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	10	10	24	24
Mvmt Flow	88	7	151	0	0	126
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	8.5	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	93%	0%
Vol Thru, %	100%	0%	100%
Vol Right, %	0%	7%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	115	72	96
LT Vol	0	67	0
Through Vol	115	0	96
RT Vol	0	5	0
Lane Flow Rate	151	95	126
Geometry Grp	1	1	1
Degree of Util (X)	0.187	0.125	0.165
Departure Headway (Hd)	4.45	4.746	4.707
Convergence, Y/N	Yes	Yes	Yes
Cap	810	757	764
Service Time	2.463	2.763	2.722
HCM Lane V/C Ratio	0.186	0.125	0.165
HCM Control Delay	8.5	8.4	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.4	0.6

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	37	73	58	134	146	98
Future Vol, veh/h	37	73	58	134	146	98
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	55	109	87	200	218	146

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	669	295	366	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.15	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.245	-	-	-
Pot Cap-1 Maneuver	415	733	1176	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	379	731	1174	-	-	-
Mov Cap-2 Maneuver	379	-	-	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1174	-	557	-	-
HCM Lane V/C Ratio	0.074	-	0.295	-	-
HCM Control Delay (s)	8.3	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	67	1	0	94	10	0	9	1	0	2	59
Future Vol, veh/h	14	67	1	0	94	10	0	9	1	0	2	59
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	3	3	3	1	1	1	0	0	0	8	8	8
Mvmt Flow	19	92	1	0	129	14	0	12	1	0	3	81
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8	7.6	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	17%	0%	0%
Vol Thru, %	90%	82%	90%	3%
Vol Right, %	10%	1%	10%	97%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	82	104	61
LT Vol	0	14	0	0
Through Vol	9	67	94	2
RT Vol	1	1	10	59
Lane Flow Rate	14	112	142	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.133	0.163	0.094
Departure Headway (Hd)	4.494	4.257	4.114	4.035
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	831	860	893
Service Time	2.497	2.338	2.193	2.035
HCM Lane V/C Ratio	0.017	0.135	0.165	0.094
HCM Control Delay	7.6	8	8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.5	0.6	0.3

Intersection

Intersection Delay, s/veh 8.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	21	102	13	17	0	87	46	17	4	29	7
Future Vol, veh/h	5	21	102	13	17	0	87	46	17	4	29	7
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	19	19	19
Mvmt Flow	7	28	134	17	22	0	114	61	22	5	38	9
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	8.7	8.9	9.1	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	43%	100%	0%
Vol Thru, %	0%	73%	0%	17%	57%	0%	81%
Vol Right, %	0%	27%	0%	83%	0%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	87	63	5	123	30	4	36
LT Vol	87	0	5	0	13	4	0
Through Vol	0	46	0	21	17	0	29
RT Vol	0	17	0	102	0	0	7
Lane Flow Rate	114	83	7	162	39	5	47
Geometry Grp	5	5	5	5	4b	5	5
Degree of Util (X)	0.178	0.113	0.011	0.211	0.061	0.009	0.071
Departure Headway (Hd)	5.604	4.912	5.783	4.698	5.522	6.05	5.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	640	729	620	764	649	591	661
Service Time	3.338	2.646	3.509	2.424	3.557	3.79	3.149
HCM Lane V/C Ratio	0.178	0.114	0.011	0.212	0.06	0.008	0.071
HCM Control Delay	9.6	8.3	8.6	8.7	8.9	8.8	8.6
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0	0.8	0.2	0	0.2

MOVEMENT SUMMARY

Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2030 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	ft				mph
East: Harkins St (WB)															
6	T1	All MCs	212	1.7	212	1.7	0.209	6.0	LOS A	1.0	25.8	0.41	0.53	0.41	34.6
16	R2	All MCs	17	1.7	17	1.7	0.209	5.8	LOS A	1.0	25.8	0.41	0.53	0.41	34.3
Approach			229	1.7	229	1.7	0.209	6.0	LOS A	1.0	25.8	0.41	0.53	0.41	34.6
North: Wheaton Way (SB)															
7u	U	All MCs	1	3.1	1	3.1	0.291	12.1	LOS B	1.6	42.0	0.43	0.56	0.43	34.2
7	L2	All MCs	15	3.1	15	3.1	0.291	10.1	LOS B	1.6	42.0	0.43	0.56	0.43	34.2
14	R2	All MCs	309	3.1	309	3.1	0.291	5.6	LOS A	1.6	42.0	0.43	0.56	0.43	34.5
Approach			324	3.1	324	3.1	0.291	5.9	LOS A	1.6	42.0	0.43	0.56	0.43	34.5
West: Manette Bridge (EB)															
5	L2	All MCs	260	6.2	260	6.2	0.295	9.1	LOS A	1.8	46.3	0.11	0.59	0.11	33.3
2	T1	All MCs	117	6.2	117	6.2	0.295	4.8	LOS A	1.8	46.3	0.11	0.59	0.11	33.9
Approach			377	6.2	377	6.2	0.295	7.8	LOS A	1.8	46.3	0.11	0.59	0.11	33.5
All Vehicles			930	4.0	930	4.0	0.295	6.7	LOS A	1.8	46.3	0.30	0.57	0.30	34.1

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:48:22 PM

Project: C:\Users\Daniel Hodun\TSI Dropbox\Daniel Hodun\TSI Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2030 Baseline.sip9

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕							↕
Traffic Vol, veh/h	0	0	0	105	3	0	0	0	0	0	0	43
Future Vol, veh/h	0	0	0	105	3	0	0	0	0	0	0	43
Conflicting Peds, #/hr	0	0	0	4	0	0	0	0	0	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	3	3	3	0	0	0	9	9	9
Mvmt Flow	0	0	0	118	3	0	0	0	0	0	0	48

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

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

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

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	22	80	13	9	165
Future Vol, veh/h	20	22	80	13	9	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	25	27	99	16	11	204

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	333	107	0	0	115
Stage 1	107	-	-	-	-
Stage 2	226	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.11
Critical Hdwy Stg 1	5.45	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.209
Pot Cap-1 Maneuver	656	939	-	-	1480
Stage 1	910	-	-	-	-
Stage 2	805	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	651	939	-	-	1480
Mov Cap-2 Maneuver	651	-	-	-	-
Stage 1	910	-	-	-	-
Stage 2	799	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	776	1480
HCM Lane V/C Ratio	-	-	0.067	0.008
HCM Control Delay (s)	-	-	10	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	3	210	46	17	202	8	10	3	10	10	21	10
Future Vol, veh/h	3	210	46	17	202	8	10	3	10	10	21	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	4	4	4	6	6	6	10	10	10	0	0	0
Mvmt Flow	4	250	55	20	240	10	12	4	12	12	25	12
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11	10.3	8.6	8.7
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	43%	100%	0%	100%	0%	24%
Vol Thru, %	13%	0%	82%	0%	96%	51%
Vol Right, %	43%	0%	18%	0%	4%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	3	256	17	210	41
LT Vol	10	3	0	17	0	10
Through Vol	3	0	210	0	202	21
RT Vol	10	0	46	0	8	10
Lane Flow Rate	27	4	305	20	250	49
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.041	0.005	0.412	0.031	0.349	0.071
Departure Headway (Hd)	5.346	5.497	4.869	5.549	5.02	5.214
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	668	651	741	645	718	685
Service Time	3.396	3.227	2.598	3.28	2.75	3.261
HCM Lane V/C Ratio	0.04	0.006	0.412	0.031	0.348	0.072
HCM Control Delay	8.6	8.3	11	8.5	10.4	8.7
HCM Lane LOS	A	A	B	A	B	A
HCM 95th-tile Q	0.1	0	2	0.1	1.6	0.2

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↔	↔	↔			↔	
Traffic Vol, veh/h	0	0	0	72	1	285	31	103	0	0	114	210
Future Vol, veh/h	0	0	0	72	1	285	31	103	0	0	114	210
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	3	3	3	5	5	5	4	4	4
Mvmt Flow	0	0	0	79	1	313	34	113	0	0	125	231

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	306	306	113
Stage 1	181	181	-
Stage 2	125	125	-
Critical Hdwy	6.43	6.53	6.23
Critical Hdwy Stg 1	5.43	5.53	-
Critical Hdwy Stg 2	5.43	5.53	-
Follow-up Hdwy	3.527	4.027	3.327
Pot Cap-1 Maneuver	684	606	937
Stage 1	848	748	-
Stage 2	898	791	-
Platoon blocked, %			
Mov Cap-1 Maneuver	667	0	937
Mov Cap-2 Maneuver	667	0	-
Stage 1	827	0	-
Stage 2	898	0	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1443	-	667	937	-
HCM Lane V/C Ratio	0.024	-	0.12	0.334	-
HCM Control Delay (s)	7.6	0	11.1	10.8	-
HCM Lane LOS	A	A	B	B	-
HCM 95th %tile Q(veh)	0.1	-	0.4	1.5	-

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	94	0	13	0	0	0	0	73	72	163	101	0
Future Vol, veh/h	94	0	13	0	0	0	0	73	72	163	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	4	4	4
Mvmt Flow	108	0	15	0	0	0	0	84	83	187	116	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	616	657	116	-	0	0	167	0	0
Stage 1	490	490	-	-	-	-	-	-	-
Stage 2	126	167	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.236	-	-
Pot Cap-1 Maneuver	454	385	936	0	-	-	1399	-	0
Stage 1	616	549	-	0	-	-	-	-	0
Stage 2	900	760	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	389	0	936	-	-	-	1399	-	-
Mov Cap-2 Maneuver	389	0	-	-	-	-	-	-	-
Stage 1	616	0	-	-	-	-	-	-	-
Stage 2	771	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0	4.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	419	1399	-
HCM Lane V/C Ratio	-	-	0.294	0.134	-
HCM Control Delay (s)	-	-	17.1	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.5	-

Intersection												
Int Delay, s/veh	13.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Vol, veh/h	0	387	114	148	452	0	0	0	0	154	0	137
Future Vol, veh/h	0	387	114	148	452	0	0	0	0	154	0	137
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Stop
Storage Length	-	-	175	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	421	124	161	491	0	0	0	0	167	0	149

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	-	421	0	0	1024	1234	246
Stage 1	-	-	-	-	-	-	813	813	-
Stage 2	-	-	-	-	-	-	211	421	-
Critical Hdwy	-	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	0	-	0	1135	-	0	231	175	754
Stage 1	0	-	0	-	-	0	396	390	-
Stage 2	0	-	0	-	-	0	804	587	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1135	-	-	186	0	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	0	-
Stage 1	-	-	-	-	-	-	396	0	-
Stage 2	-	-	-	-	-	-	647	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.5	54.5
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1135	-	186	754
HCM Lane V/C Ratio	-	0.142	-	0.9	0.197
HCM Control Delay (s)	-	8.7	0.5	93.2	10.9
HCM Lane LOS	-	A	A	F	B
HCM 95th %tile Q(veh)	-	0.5	-	6.8	0.7

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕			
Traffic Volume (veh/h)	170	338	0	0	303	115	351	1	198	0	0	0
Future Volume (veh/h)	170	338	0	0	303	115	351	1	198	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1535	1535	0	0	1547	1547	1522	1522	1522			
Adj Flow Rate, veh/h	175	348	0	0	312	0	362	1	204			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	6	6	0	0	5	5	7	7	7			
Cap, veh/h	0	957	0	0	965		534	1	477			
Arrive On Green	0.00	0.33	0.00	0.00	0.33	0.00	0.37	0.37	0.37			
Sat Flow, veh/h	0	2993	0	0	3094	0	1446	4	1290			
Grp Volume(v), veh/h	0	348	0	0	312	0	363	0	204			
Grp Sat Flow(s),veh/h/ln	0	1458	0	0	1470	0	1450	0	1290			
Q Serve(g_s), s	0.0	2.8	0.0	0.0	2.4	0.0	6.4	0.0	3.6			
Cycle Q Clear(g_c), s	0.0	2.8	0.0	0.0	2.4	0.0	6.4	0.0	3.6			
Prop In Lane	0.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	957	0	0	965		536	0	477			
V/C Ratio(X)	0.00	0.36	0.00	0.00	0.32		0.68	0.00	0.43			
Avail Cap(c_a), veh/h	0	6165	0	0	3841		1438	0	1279			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.8	0.0	0.0	7.7	0.0	8.1	0.0	7.2			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	1.5	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	0.0	1.0	0.0	0.0	0.9	0.0	2.3	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.0	0.0	0.0	7.9	0.0	9.6	0.0	7.8			
LnGrp LOS	A	A	A	A	A		A	A	A			
Approach Vol, veh/h		348			312			567				
Approach Delay, s/veh		8.0			7.9			8.9				
Approach LOS		A			A			A				
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	14.6		15.9		14.6						
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	39.8		30.2		64.4						
Max Q Clear Time (g_c+I1), s	0.0	4.4		8.4		4.8						
Green Ext Time (p_c), s	0.0	2.1		2.9		2.5						

Intersection Summary

HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	31	6	0	0	24	936	13	5	982	19
Future Volume (veh/h)	33	0	31	6	0	0	24	936	13	5	982	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1447	1447	1447	1610	1610	1610	1560	1560	1560	1560	1560	1560
Adj Flow Rate, veh/h	38	0	36	7	0	0	28	1076	15	6	1129	22
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	13	13	0	0	0	4	4	4	4	4	4
Cap, veh/h	128	0	73	95	97	0	436	2532	35	449	2468	48
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.02	0.85	0.85	0.01	0.83	0.83
Sat Flow, veh/h	1268	0	1202	1374	1610	0	1485	2991	42	1485	2973	58
Grp Volume(v), veh/h	38	0	36	7	0	0	28	533	558	6	563	588
Grp Sat Flow(s),veh/h/ln	1268	0	1202	1374	1610	0	1485	1482	1551	1485	1482	1549
Q Serve(g_s), s	4.1	0.0	4.1	0.7	0.0	0.0	0.4	12.1	12.1	0.1	14.6	14.6
Cycle Q Clear(g_c), s	4.1	0.0	4.1	4.8	0.0	0.0	0.4	12.1	12.1	0.1	14.6	14.6
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	128	0	73	95	97	0	436	1254	1313	449	1230	1286
V/C Ratio(X)	0.30	0.00	0.50	0.07	0.00	0.00	0.06	0.42	0.42	0.01	0.46	0.46
Avail Cap(c_a), veh/h	323	0	258	306	345	0	507	1254	1313	544	1230	1286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.85	0.85	0.85	0.93	0.93	0.93
Uniform Delay (d), s/veh	63.7	0.0	63.7	66.0	0.0	0.0	2.3	2.6	2.6	2.2	3.3	3.3
Incr Delay (d2), s/veh	1.3	0.0	5.2	0.3	0.0	0.0	0.1	0.9	0.9	0.0	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(95%),veh/ln	2.5	0.0	2.4	0.5	0.0	0.0	0.1	5.2	5.4	0.0	6.8	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.0	0.0	68.9	66.3	0.0	0.0	2.4	3.5	3.4	2.2	4.4	4.3
LnGrp LOS	E	A	E	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		74			7			1119			1157	
Approach Delay, s/veh		66.9			66.3			3.4			4.4	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	122.5			12.5	7.3	120.2		12.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	88.0	88.0		30.0	10.0	88.0		30.0				
Max Q Clear Time (g_c+1), s	14.1			6.1	2.4	16.6		6.8				
Green Ext Time (p_c), s	0.0	9.7		0.3	0.0	10.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay		6.1										
HCM 6th LOS		A										

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗		↖	↑	↗
Traffic Volume (veh/h)	19	682	338	14	363	8	291	98	67	144	188	27
Future Volume (veh/h)	19	682	338	14	363	8	291	98	67	144	188	27
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	1510	1510	1510	1497	1497	1497	1484	1484	1484	1535	1535	1535
Adj Flow Rate, veh/h	21	766	0	16	408	9	327	110	75	162	211	30
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	8	8	8	9	9	9	10	10	10	6	6	6
Cap, veh/h	23	656		19	630	14	350	225	153	183	234	199
Arrive On Green	0.02	0.43	0.00	0.01	0.43	0.43	0.25	0.27	0.27	0.12	0.15	0.15
Sat Flow, veh/h	1438	1510	1279	1426	1459	32	1414	823	561	1462	1535	1301
Grp Volume(v), veh/h	21	766	0	16	0	417	327	0	185	162	211	30
Grp Sat Flow(s),veh/h/ln	1438	1510	1279	1426	0	1491	1414	0	1383	1462	1535	1301
Q Serve(g_s), s	1.9	57.9	0.0	1.5	0.0	29.4	30.2	0.0	14.9	14.5	18.0	2.7
Cycle Q Clear(g_c), s	1.9	57.9	0.0	1.5	0.0	29.4	30.2	0.0	14.9	14.5	18.0	2.7
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	23	656		19	0	644	350	0	378	183	234	199
V/C Ratio(X)	0.90	1.17		0.84	0.00	0.65	0.93	0.00	0.49	0.89	0.90	0.15
Avail Cap(c_a), veh/h	43	656		43	0	654	413	0	431	234	276	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.4	37.7	0.0	65.6	0.0	29.9	49.1	0.0	40.6	57.4	55.4	48.9
Incr Delay (d2), s/veh	51.9	91.2	0.0	47.1	0.0	2.9	27.0	0.0	0.7	26.0	26.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	52.4	0.0	1.4	0.0	16.1	19.0	0.0	8.8	10.9	13.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	117.3	128.9	0.0	112.6	0.0	32.8	76.0	0.0	41.4	83.3	81.7	49.2
LnGrp LOS	F	F		F	A	C	E	A	D	F	F	D
Approach Vol, veh/h		787			433			512			403	
Approach Delay, s/veh		128.6			35.7			63.5			79.9	
Approach LOS		F			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	63.3	38.1	25.5	6.8	62.9	22.0	41.5				
Change Period (Y+Rc), s	4.6	5.4	5.1	5.1	4.6	* 5.4	5.4	* 5.1				
Max Green Setting (Gmax), s	4.0	57.9	38.9	24.0	4.0	* 58	21.3	* 42				
Max Q Clear Time (g_c+1), s	13.5	59.9	32.2	20.0	3.9	31.4	16.5	16.9				
Green Ext Time (p_c), s	0.0	0.0	0.8	0.4	0.0	4.7	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	84.9
HCM 6th LOS	F

Notes

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

HCM 6th Signalized Intersection Summary

216: SR 3 & Imperial Way

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (veh/h)	49	1	11	1	2	4	41	791	6	18	422	8
Future Volume (veh/h)	49	1	11	1	2	4	41	791	6	18	422	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1020	1020	1020	1610	1610	1610	1547	1547	1547	1510	1510	1510
Adj Flow Rate, veh/h	52	1	12	1	2	0	43	833	6	19	444	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	47	47	47	0	0	0	5	5	5	8	8	8
Cap, veh/h	193	5	64	152	38		537	904	766	218	846	717
Arrive On Green	0.06	0.08	0.08	0.00	0.02	0.00	0.05	0.58	0.58	0.03	0.56	0.56
Sat Flow, veh/h	971	67	807	1533	1610	1364	1474	1547	1311	1438	1510	1279
Grp Volume(v), veh/h	52	0	13	1	2	0	43	833	6	19	444	8
Grp Sat Flow(s),veh/h/ln	971	0	874	1533	1610	1364	1474	1547	1311	1438	1510	1279
Q Serve(g_s), s	3.1	0.0	0.9	0.0	0.1	0.0	0.7	29.9	0.1	0.3	11.3	0.2
Cycle Q Clear(g_c), s	3.1	0.0	0.9	0.0	0.1	0.0	0.7	29.9	0.1	0.3	11.3	0.2
Prop In Lane	1.00		0.92	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	0	69	152	38		537	904	766	218	846	717
V/C Ratio(X)	0.27	0.00	0.19	0.01	0.05		0.08	0.92	0.01	0.09	0.52	0.01
Avail Cap(c_a), veh/h	357	0	383	299	496		804	1041	882	796	1314	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	26.6	29.3	29.5	0.0	5.9	11.5	5.4	12.1	8.4	6.0
Incr Delay (d2), s/veh	0.7	0.0	1.3	0.0	0.6	0.0	0.1	11.9	0.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.0	0.4	0.0	0.1	0.0	0.3	16.5	0.0	0.2	5.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	27.9	29.4	30.0	0.0	5.9	23.4	5.4	12.2	8.9	6.0
LnGrp LOS	C	A	C	C	C		A	C	A	B	A	A
Approach Vol, veh/h		65			3			882			471	
Approach Delay, s/veh		27.1			29.8			22.4			9.0	
Approach LOS		C			C			C			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	42.1	4.1	9.4	7.6	40.6	7.5	5.9				
Change Period (Y+Rc), s	4.5	6.0	4.0	4.5	4.5	6.0	4.0	4.5				
Max Green Setting (Gmax)	26.5	41.5	6.0	27.0	14.3	53.7	14.0	19.0				
Max Q Clear Time (g_c+1)	12.3	31.9	2.0	2.9	2.7	13.3	5.1	2.1				
Green Ext Time (p_c), s	0.0	4.1	0.0	0.0	0.0	3.1	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

307: Naval St & 15th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	2	135	28	6	72	13	24	6	7	14	21	11
Future Volume (veh/h)	2	135	28	6	72	13	24	6	7	14	21	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1522	1522	1522	1484	1484	1484	1472	1472	1472	1547	1547	1547
Adj Flow Rate, veh/h	3	178	37	8	95	17	32	8	9	18	28	14
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	7	7	7	10	10	10	11	11	11	5	5	5
Cap, veh/h	191	325	67	211	316	54	531	117	77	311	286	108
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	9	1215	250	47	1181	203	702	369	241	216	899	339
Grp Volume(v), veh/h	218	0	0	120	0	0	49	0	0	60	0	0
Grp Sat Flow(s),veh/h/ln	1474	0	0	1430	0	0	1312	0	0	1455	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.3	0.0	0.0	0.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.01		0.17	0.07		0.14	0.65		0.18	0.30		0.23
Lane Grp Cap(c), veh/h	584	0	0	582	0	0	725	0	0	705	0	0
V/C Ratio(X)	0.37	0.00	0.00	0.21	0.00	0.00	0.07	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	2551	0	0	2472	0	0	2385	0	0	2541	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.1	0.0	0.0	5.6	0.0	0.0	4.7	0.0	0.0	4.7	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	0.0	0.0	5.8	0.0	0.0	4.7	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		218			120			49			60	
Approach Delay, s/veh		6.5			5.8			4.7			4.7	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.1		9.2		10.1		9.2				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		31.0		31.0		31.0				
Max Q Clear Time (g_c+I1), s		2.5		4.5		2.6		3.3				
Green Ext Time (p_c), s		0.2		1.4		0.3		0.7				
Intersection Summary												
HCM 6th Ctrl Delay					5.9							
HCM 6th LOS					A							

MOVEMENT SUMMARY

Site: 328 [SR 3 & Ariport Rd (Site Folder: 2030 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]					
			veh/h	%	veh/h	%	v/c	sec			veh	ft				mph
South: SR 3																
8	T1	All MCs	801	8.0	801	8.0	0.670	5.6	LOS A	5.7	151.0	0.31	0.44	0.31	37.1	
18	R2	All MCs	26	8.0	26	8.0	0.670	5.4	LOS A	5.7	151.0	0.31	0.44	0.31	29.5	
Approach			827	8.0	827	8.0	0.670	5.6	LOS A	5.7	151.0	0.31	0.44	0.31	36.8	
East: Ariport Rd																
1	L2	All MCs	20	7.0	20	7.0	0.087	9.4	LOS A	0.4	11.1	0.64	0.66	0.64	27.3	
16	R2	All MCs	42	7.0	42	7.0	0.087	5.5	LOS A	0.4	11.1	0.64	0.66	0.64	27.5	
Approach			62	7.0	62	7.0	0.087	6.8	LOS A	0.4	11.1	0.64	0.66	0.64	27.4	
North: SR 3																
7	L2	All MCs	51	8.0	51	8.0	0.452	10.8	LOS B	2.9	76.7	0.14	0.45	0.14	29.6	
4	T1	All MCs	521	8.0	521	8.0	0.452	5.1	LOS A	2.9	76.7	0.14	0.45	0.14	37.7	
Approach			572	8.0	572	8.0	0.452	5.6	LOS A	2.9	76.7	0.14	0.45	0.14	36.8	
All Vehicles			1461	8.0	1461	8.0	0.670	5.7	LOS A	5.7	151.0	0.26	0.45	0.26	36.3	

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:50:50 PM
 Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSD Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan
 #554-1896-192\LOS\2030 Baseline.sip9

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑		↑		↑	↑	↑	↑
Traffic Volume (veh/h)	0	604	465	392	525	0	71	0	290	564	308	8
Future Volume (veh/h)	0	604	465	392	525	0	71	0	290	564	308	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1560	1560	1560	1560	0	1535	0	1535	1560	1560	1560
Adj Flow Rate, veh/h	0	616	474	400	536	0	72	0	0	445	497	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	4	4	4	4	0	6	0	6	4	4	4
Cap, veh/h	0	1190	527	454	1746	0	0	0		521	547	
Arrive On Green	0.00	0.40	0.40	0.16	0.59	0.00	0.00	0.00	0.00	0.35	0.35	0.00
Sat Flow, veh/h	0	3042	1314	2882	3042	0		0		1485	1560	1322
Grp Volume(v), veh/h	0	616	474	400	536	0		0.0		445	497	0
Grp Sat Flow(s),veh/h/ln	0	1482	1314	1441	1482	0				1485	1560	1322
Q Serve(g_s), s	0.0	23.6	50.7	20.4	13.6	0.0				41.6	45.5	0.0
Cycle Q Clear(g_c), s	0.0	23.6	50.7	20.4	13.6	0.0				41.6	45.5	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1190	527	454	1746	0				521	547	
V/C Ratio(X)	0.00	0.52	0.90	0.88	0.31	0.00				0.85	0.91	
Avail Cap(c_a), veh/h	0	1190	527	567	1746	0				629	660	
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	1.00	0.90	0.90	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	33.9	42.0	61.8	15.5	0.0				45.1	46.4	0.0
Incr Delay (d2), s/veh	0.0	1.6	20.8	12.7	0.4	0.0				9.9	15.1	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(95%),veh/ln	0.0	13.6	26.4	12.7	8.1	0.0				23.3	27.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	35.5	62.8	74.5	15.9	0.0				55.0	61.4	0.0
LnGrp LOS	A	D	E	E	B	A				E	E	
Approach Vol, veh/h		1090			936							942
Approach Delay, s/veh		47.4			40.9							58.4
Approach LOS		D			D							E
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			28.1	64.7		57.2		92.8				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			29.5	25.5		63.5		59.5				
Max Q Clear Time (g_c+I1), s			22.4	52.7		47.5		15.6				
Green Ext Time (p_c), s			1.3	0.0		5.1		4.8				
Intersection Summary												
HCM 6th Ctrl Delay			48.8									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1325	0	0	803	803	187	1	147	0	0	0
Future Volume (veh/h)	85	1325	0	0	803	803	187	1	147	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No				No		No					
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1572	1572	1597	1597	1597			
Adj Flow Rate, veh/h	89	1380	0	0	836	0	195	1	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	3	3	1	1	1			
Cap, veh/h	755	2389	0	0	931		212	1				
Arrive On Green	0.90	1.00	0.00	0.00	0.52	0.00	0.14	0.14	0.00			
Sat Flow, veh/h	1509	3091	0	0	3066	1332	1514	8	1354			
Grp Volume(v), veh/h	89	1380	0	0	836	0	196	0	0			
Grp Sat Flow(s),veh/h/ln	1509	1506	0	0	1494	1332	1522	0	1354			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	37.8	0.0	19.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	37.8	0.0	19.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	755	2389	0	0	931		213	0				
V/C Ratio(X)	0.12	0.58	0.00	0.00	0.90		0.92	0.00				
Avail Cap(c_a), veh/h	755	2389	0	0	2012		213	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(l)	0.41	0.41	0.00	0.00	0.66	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	3.7	0.0	0.0	0.0	33.8	0.0	63.7	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	9.3	0.0	40.2	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			
%ile BackOfQ(95%),veh/lr	0.6	0.3	0.0	0.0	17.6	0.0	14.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.7	0.4	0.0	0.0	43.1	0.0	103.8	0.0	0.0			
LnGrp LOS	A	A	A	A	D		F	A				
Approach Vol, veh/h	1469				836		196					
Approach Delay, s/veh	0.6				43.1		103.8					
Approach LOS	A				D		F					
Timer - Assigned Phs				4		6		7		8		
Phs Duration (G+Y+Rc), s				124.0		26.0		72.2		51.8		
Change Period (Y+Rc), s				5.0		5.0		5.0		5.0		
Max Green Setting (Gmax), s				119.0		21.0		13.0		101.0		
Max Q Clear Time (g_c+I1), s				2.0		21.1		2.0		39.8		
Green Ext Time (p_c), s				16.0		0.0		0.1		7.0		
Intersection Summary												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

4: Shorewood Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1261	145	5	1475	50	61	4	23	42	3	37
Future Volume (veh/h)	63	1261	145	5	1475	50	61	4	23	42	3	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1547	1547	1547	1560	1560	1560
Adj Flow Rate, veh/h	66	1314	0	5	1536	52	64	4	24	44	3	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	4	4	4
Cap, veh/h	502	2325		236	1484	644	112	11	29	170	10	152
Arrive On Green	0.57	1.00	0.00	0.02	0.99	0.99	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1509	3011	1343	1509	3011	1307	609	92	248	1056	84	1295
Grp Volume(v), veh/h	66	1314	0	5	1536	52	92	0	0	47	0	39
Grp Sat Flow(s),veh/h/ln	1509	1506	1343	1509	1506	1307	949	0	0	1140	0	1295
Q Serve(g_s), s	0.0	0.0	0.0	0.3	73.9	0.1	9.4	0.0	0.0	0.0	0.0	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.3	73.9	0.1	15.2	0.0	0.0	5.8	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	0.70		0.26	0.94		1.00
Lane Grp Cap(c), veh/h	502	2325		236	1484	644	152	0	0	180	0	152
V/C Ratio(X)	0.13	0.57		0.02	1.03	0.08	0.61	0.00	0.00	0.26	0.00	0.26
Avail Cap(c_a), veh/h	502	2325		325	1857	806	278	0	0	311	0	276
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.75	0.75	0.00	0.70	0.70	0.70	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	0.0	20.9	1.1	0.5	67.1	0.0	0.0	61.0	0.0	60.3
Incr Delay (d2), s/veh	0.1	0.8	0.0	0.0	29.2	0.2	3.9	0.0	0.0	0.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.4	0.0	0.2	10.1	0.1	6.6	0.0	0.0	3.1	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	0.8	0.0	20.9	30.3	0.7	71.0	0.0	0.0	61.8	0.0	61.2
LnGrp LOS	C	A		C	F	A	E	A	A	E	A	E
Approach Vol, veh/h		1380			1593			92				86
Approach Delay, s/veh		1.7			29.3			71.0				61.5
Approach LOS		A			C			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.6	6.1	121.3		22.6	41.2	86.2				
Change Period (Y+Rc), s		5.0	5.0	5.5		5.0	5.5	*5.5				
Max Green Setting (Gmax), s		32.0	10.0	92.5		32.0	10.0	*93				
Max Q Clear Time (g_c+I1), s		17.2	2.3	2.0		7.8	2.0	75.9				
Green Ext Time (p_c), s		0.4	0.0	18.6		0.3	0.1	11.5				

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1215	74	109	1462	0	114	0	90	2	0	0
Future Volume (veh/h)	1	1215	74	109	1462	0	114	0	90	2	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1572	1572	1572	1610	1610	1610
Adj Flow Rate, veh/h	1	1253	76	112	1507	0	118	0	93	2	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	0	0	0
Cap, veh/h	433	2221	970	306	1666	0	195	0	210	77	0	0
Arrive On Green	0.48	1.00	1.00	0.12	1.00	0.00	0.10	0.00	0.10	0.10	0.00	0.00
Sat Flow, veh/h	1509	3011	1315	1509	3091	0	1468	0	1316	293	0	0
Grp Volume(v), veh/h	1	1253	76	112	1507	0	118	0	93	2	0	0
Grp Sat Flow(s),veh/h/ln	1509	1506	1315	1509	1506	0	1468	0	1316	293	0	0
Q Serve(g_s), s	0.0	0.0	0.0	5.7	0.0	0.0	0.0	0.0	9.6	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.7	0.0	0.0	11.6	0.0	9.6	11.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	433	2221	970	306	1666	0	195	0	210	77	0	0
V/C Ratio(X)	0.00	0.56	0.08	0.37	0.90	0.00	0.61	0.00	0.44	0.03	0.00	0.00
Avail Cap(c_a), veh/h	433	2221	970	328	2098	0	279	0	289	156	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.80	0.80	0.80	0.77	0.77	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.7	0.0	0.0	16.9	0.0	0.0	66.0	0.0	57.1	71.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.1	0.6	6.8	0.0	3.0	0.0	1.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.5	0.1	3.4	2.8	0.0	8.2	0.0	5.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.8	0.1	17.5	6.8	0.0	69.0	0.0	58.5	71.9	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	E	A	E	E	A	A
Approach Vol, veh/h		1330			1619			211				2
Approach Delay, s/veh		0.8			7.5			64.4				71.9
Approach LOS		A			A			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	69.5	60.5		20.0	13.3	116.7				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		24.0	6.0	* 1E2		24.0	11.0	99.5				
Max Q Clear Time (g_c+I1), s		13.6	2.0	2.0		13.9	7.7	2.0				
Green Ext Time (p_c), s		0.7	0.0	25.0		0.0	0.1	17.9				

Intersection Summary

HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

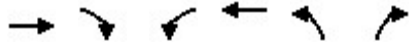
Notes

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

HCM 6th Signalized Intersection Summary

6: Oyster Bay Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↗	↖
Traffic Volume (veh/h)	1306	53	84	1448	41	84
Future Volume (veh/h)	1306	53	84	1448	41	84
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1610	1610
Adj Flow Rate, veh/h	1404	57	90	1557	44	90
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2358	1023	391	2576	119	160
Arrive On Green	1.00	1.00	0.04	0.86	0.08	0.08
Sat Flow, veh/h	3091	1307	1509	3091	1533	1364
Grp Volume(v), veh/h	1404	57	90	1557	44	90
Grp Sat Flow(s),veh/h/ln	1506	1307	1509	1506	1533	1364
Q Serve(g_s), s	0.0	0.0	1.6	23.2	4.1	9.4
Cycle Q Clear(g_c), s	0.0	0.0	1.6	23.2	4.1	9.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2358	1023	391	2576	119	160
V/C Ratio(X)	0.60	0.06	0.23	0.60	0.37	0.56
Avail Cap(c_a), veh/h	2358	1023	443	2576	348	363
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.78	0.78	0.75	0.75	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	2.2	3.2	65.7	62.6
Incr Delay (d2), s/veh	0.9	0.1	0.2	0.8	1.9	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.0	0.7	8.1	3.0	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.9	0.1	2.4	4.0	67.5	65.7
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h	1461			1647	134	
Approach Delay, s/veh	0.8			4.0	66.3	
Approach LOS	A			A	E	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			10.9	122.5	16.7	133.3
Change Period (Y+Rc), s			5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s			11.0	90.0	34.0	106.0
Max Q Clear Time (g_c+I1), s			3.6	2.0	11.4	25.2
Green Ext Time (p_c), s			0.1	21.9	0.4	25.9
Intersection Summary						
HCM 6th Ctrl Delay			5.1			
HCM 6th LOS			A			

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1308	123	301	1406	2	71	1	290	5	4	2
Future Volume (veh/h)	1	1308	123	301	1406	2	71	1	290	5	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1610	1610	1610
Adj Flow Rate, veh/h	1	1377	0	317	1480	2	75	1	13	5	4	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	0	0	0
Cap, veh/h	2	1557		439	2475	3	139	1	142	43	27	8
Arrive On Green	0.00	0.17	0.00	0.58	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1521	3035	1354	1509	3085	4	856	14	1335	79	253	74
Grp Volume(v), veh/h	1	1377	0	317	722	760	76	0	13	11	0	0
Grp Sat Flow(s),veh/h/ln	1521	1518	1354	1509	1506	1584	870	0	1335	405	0	0
Q Serve(g_s), s	0.1	66.5	0.0	22.7	0.0	0.0	0.0	0.0	1.3	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	66.5	0.0	22.7	0.0	0.0	14.1	0.0	1.3	14.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.99		1.00	0.45		0.18
Lane Grp Cap(c), veh/h	2	1557		439	1208	1271	140	0	142	78	0	0
V/C Ratio(X)	0.40	0.88		0.72	0.60	0.60	0.54	0.00	0.09	0.14	0.00	0.00
Avail Cap(c_a), veh/h	76	1683		439	1208	1271	174	0	174	113	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.77	0.77	0.00	0.39	0.39	0.39	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	74.9	58.0	0.0	27.0	0.0	0.0	66.2	0.0	60.5	60.8	0.0	0.0
Incr Delay (d2), s/veh	65.4	6.1	0.0	2.3	0.9	0.8	3.2	0.0	0.3	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.2	36.2	0.0	9.0	0.5	0.5	5.4	0.0	0.8	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	140.3	64.1	0.0	29.3	0.9	0.8	69.4	0.0	60.8	61.6	0.0	0.0
LnGrp LOS	F	E		C	A	A	E	A	E	E	A	A
Approach Vol, veh/h		1378			1799			89			11	
Approach Delay, s/veh		64.1			5.9			68.2			61.6	
Approach LOS		E			A			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.4	48.1	81.4		20.4	4.7	124.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	33.8	83.2		19.5	7.5	109.5				
Max Q Clear Time (g_c+I1), s		16.1	24.7	68.5		16.1	2.1	2.0				
Green Ext Time (p_c), s		0.1	0.7	8.5		0.0	0.0	16.4				

Intersection Summary

HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1328	60	33	1493	100	75	38	67	99	30	137
Future Volume (veh/h)	170	1328	60	33	1493	100	75	38	67	99	30	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	177	1383	62	34	1555	104	78	40	70	103	31	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	2	2	2
Cap, veh/h	233	1372	594	293	1486	659	107	147	123	272	38	174
Arrive On Green	0.31	0.90	0.90	0.19	0.49	0.49	0.04	0.09	0.09	0.10	0.16	0.16
Sat Flow, veh/h	1521	3035	1315	1509	3011	1336	1533	1610	1346	1509	243	1122
Grp Volume(v), veh/h	177	1383	62	34	1555	104	78	40	70	103	0	174
Grp Sat Flow(s),veh/h/ln	1521	1518	1315	1509	1506	1336	1533	1610	1346	1509	0	1365
Q Serve(g_s), s	15.8	67.8	0.8	2.8	74.0	6.4	2.8	3.5	7.5	0.0	0.0	18.5
Cycle Q Clear(g_c), s	15.8	67.8	0.8	2.8	74.0	6.4	2.8	3.5	7.5	0.0	0.0	18.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.82
Lane Grp Cap(c), veh/h	233	1372	594	293	1486	659	107	147	123	272	0	212
V/C Ratio(X)	0.76	1.01	0.10	0.12	1.05	0.16	0.73	0.27	0.57	0.38	0.00	0.82
Avail Cap(c_a), veh/h	233	1578	684	293	1486	659	130	360	301	272	0	287
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.6	7.2	4.0	49.8	38.0	20.9	69.8	63.5	65.4	57.6	0.0	61.3
Incr Delay (d2), s/veh	7.4	18.9	0.2	0.2	36.6	0.5	21.9	1.0	4.1	0.9	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	8.4	9.0	0.4	1.9	45.1	3.8	6.5	2.7	4.9	6.6	0.0	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.9	26.1	4.2	50.0	74.6	21.4	91.8	64.5	69.5	58.5	0.0	74.3
LnGrp LOS	E	F	A	D	F	C	F	E	E	E	A	E
Approach Vol, veh/h		1622			1693			188			277	
Approach Delay, s/veh		28.6			70.9			77.7			68.4	
Approach LOS		C			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.4	20.2	31.9	76.6	11.8	29.8	29.4	79.0				
Change Period (Y+Rc), s	6.0	6.5	6.5	* 5	6.0	6.5	6.5	5.0				
Max Green Setting (Gmax), s	33.5	33.5	9.0	* 78	8.0	31.5	12.5	74.0				
Max Q Clear Time (g_c+1), s	9.5	9.5	4.8	69.8	4.8	20.5	17.8	76.0				
Green Ext Time (p_c), s	0.1	0.4	0.0	5.6	0.1	0.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	52.9
HCM 6th LOS	D

Notes

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

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

07/01/2024

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	63	1369	17	36	1598	17	47	0	114	39	0	36
Future Vol, veh/h	63	1369	17	36	1598	17	47	0	114	39	0	36
Conflicting Peds, #/hr	5	0	10	10	0	5	10	0	10	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	2	2	2	0	0	0	2	2	2
Mvmt Flow	65	1411	18	37	1647	18	48	0	118	40	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1670	0	0	1439	0	0	2459	3295	726	2581	3304	848
Stage 1	-	-	-	-	-	-	1551	1551	-	1735	1735	-
Stage 2	-	-	-	-	-	-	908	1744	-	846	1569	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.5	6.5	6.9	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.5	4	3.3	3.52	4.02	3.32
Pot Cap-1 Maneuver	385	-	-	468	-	-	~ 16	9	372	~ 13	8	305
Stage 1	-	-	-	-	-	-	121	177	-	91	140	-
Stage 2	-	-	-	-	-	-	301	142	-	323	170	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	384	-	-	464	-	-	~ 11	7	366	~ 7	6	302
Mov Cap-2 Maneuver	-	-	-	-	-	-	63	44	-	48	55	-
Stage 1	-	-	-	-	-	-	100	146	-	75	128	-
Stage 2	-	-	-	-	-	-	241	130	-	181	140	-

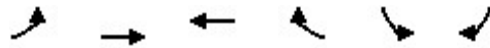
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.3			159.2			182.6		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	152	384	-	-	464	-	-	80
HCM Lane V/C Ratio	1.092	0.169	-	-	0.08	-	-	0.966
HCM Control Delay (s)	159.2	16.3	-	-	13.4	-	-	182.6
HCM Lane LOS	F	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	8.8	0.6	-	-	0.3	-	-	5.2

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

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

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶↶	↶	↶↶			↶↶
Traffic Volume (veh/h)	924	0	659	14	0	1021
Future Volume (veh/h)	924	0	659	14	0	1021
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1585	1585	1610	1610	0	1610
Adj Flow Rate, veh/h	962	0	686	15	0	1064
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	0	0	0
Cap, veh/h	1623	1516	1119	24	0	0
Arrive On Green	0.55	0.00	0.73	0.73	0.00	0.00
Sat Flow, veh/h	2928	1585	3140	67	0	
Grp Volume(v), veh/h	962	0	343	358	0.0	
Grp Sat Flow(s),veh/h/ln	1464	1585	1530	1597		
Q Serve(g_s), s	32.7	0.0	16.4	16.4		
Cycle Q Clear(g_c), s	32.7	0.0	16.4	16.4		
Prop In Lane	1.00			0.04		
Lane Grp Cap(c), veh/h	1623	1516	559	584		
V/C Ratio(X)	0.59	0.00	0.61	0.61		
Avail Cap(c_a), veh/h	1623	1516	559	584		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	22.2	0.0	15.0	15.0		
Incr Delay (d2), s/veh	0.6	0.0	2.2	2.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	16.7	0.0	7.3	7.6		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.8	0.0	17.1	17.1		
LnGrp LOS	C	A	B	B		
Approach Vol, veh/h		962	701			
Approach Delay, s/veh		22.8	17.1			
Approach LOS		C	B			
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	89.6	60.4				150.0
Change Period (Y+Rc), s	6.5	5.5				6.5
Max Green Setting (Gmax), s	44.5	49.5				113.5
Max Q Clear Time (g_c+I1), s	34.7	18.4				0.0
Green Ext Time (p_c), s	3.5	5.6				0.0
Intersection Summary						
HCM 6th Ctrl Delay			20.4			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary
 11: Wycoff Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	384	6	108	771	36	5	24	47	2	24	11
Future Volume (veh/h)	32	384	6	108	771	36	5	24	47	2	24	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1610	1610	1610	1585	1585	1585	1610	1610	1610
Adj Flow Rate, veh/h	34	413	6	116	829	39	5	26	51	2	26	12
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	0	0	2	2	2	0	0	0
Cap, veh/h	613	1269	18	902	1246	59	28	36	63	27	75	33
Arrive On Green	0.06	1.00	1.00	0.08	1.00	1.00	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1521	1570	23	1533	1523	72	39	495	879	27	1046	460
Grp Volume(v), veh/h	34	0	419	116	0	868	82	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1593	1533	0	1595	1413	0	0	1533	0	0
Q Serve(g_s), s	0.5	0.0	0.0	1.9	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.9	0.0	0.0	8.6	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.04	0.06		0.62	0.05		0.30
Lane Grp Cap(c), veh/h	613	0	1288	902	0	1305	127	0	0	135	0	0
V/C Ratio(X)	0.06	0.00	0.33	0.13	0.00	0.67	0.65	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	699	0	1288	1067	0	1305	242	0	0	258	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.27	0.00	0.27	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.9	0.0	0.0	1.8	0.0	0.0	68.6	0.0	0.0	66.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.0	0.0	0.7	5.4	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	0.4	0.8	0.0	0.5	6.0	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.0	0.0	0.7	1.8	0.0	0.7	74.0	0.0	0.0	67.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		453			984			82				40
Approach Delay, s/veh		0.8			0.9			74.0				67.6
Approach LOS		A			A			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.8	10.0	125.3		14.8	8.5	126.7				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		23.0	22.0	93.0		23.0	13.0	102.0				
Max Q Clear Time (g_c+I1), s		10.6	3.9	2.0		5.8	2.5	2.0				
Green Ext Time (p_c), s		0.3	0.3	3.2		0.1	0.0	9.6				
Intersection Summary												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	355	57	113	762	58	188	134	60	43	149	29
Future Volume (veh/h)	25	355	57	113	762	58	188	134	60	43	149	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	27	378	61	120	811	62	200	143	64	46	159	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	502	866	140	728	965	74	172	179	80	147	180	35
Arrive On Green	0.05	1.00	1.00	0.08	1.00	1.00	0.07	0.17	0.17	0.03	0.14	0.14
Sat Flow, veh/h	1521	1341	216	1521	1462	112	1521	1035	463	1521	1290	251
Grp Volume(v), veh/h	27	0	439	120	0	873	200	0	207	46	0	190
Grp Sat Flow(s),veh/h/ln	1521	0	1558	1521	0	1574	1521	0	1498	1521	0	1541
Q Serve(g_s), s	0.9	0.0	0.0	4.2	0.0	0.0	10.0	0.0	19.9	3.9	0.0	18.1
Cycle Q Clear(g_c), s	0.9	0.0	0.0	4.2	0.0	0.0	10.0	0.0	19.9	3.9	0.0	18.1
Prop In Lane	1.00		0.14	1.00		0.07	1.00		0.31	1.00		0.16
Lane Grp Cap(c), veh/h	502	0	1006	728	0	1039	172	0	259	147	0	215
V/C Ratio(X)	0.05	0.00	0.44	0.16	0.00	0.84	1.16	0.00	0.80	0.31	0.00	0.88
Avail Cap(c_a), veh/h	562	0	1006	767	0	1039	172	0	330	248	0	390
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.00	0.95	0.58	0.00	0.58	0.55	0.00	0.55	0.84	0.00	0.84
Uniform Delay (d), s/veh	8.0	0.0	0.0	7.6	0.0	0.0	58.3	0.0	59.5	53.6	0.0	63.3
Incr Delay (d2), s/veh	0.0	0.0	1.3	0.0	0.0	4.9	102.5	0.0	5.4	0.4	0.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.0	0.7	2.3	0.0	2.6	11.3	0.0	11.5	2.7	0.0	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	0.0	1.3	7.7	0.0	4.9	160.8	0.0	64.9	54.0	0.0	70.7
LnGrp LOS	A	A	A	A	A	A	F	A	E	D	A	E
Approach Vol, veh/h		466			993			407				236
Approach Delay, s/veh		1.7			5.3			112.1				67.4
Approach LOS		A			A			F				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	29.9	10.2	100.8	14.0	25.0	8.1	103.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	33.0	10.0	76.0	10.0	38.0	10.0	76.0				
Max Q Clear Time (g_c+1/3), s	15.0	21.9	6.2	2.0	12.0	20.1	2.9	2.0				
Green Ext Time (p_c), s	0.0	0.7	0.1	2.7	0.0	0.8	0.0	7.5				
Intersection Summary												
HCM 6th Ctrl Delay				32.1								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

13: N Montgomery Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	425	36	32	916	10	37	19	13	1	2	4
Future Volume (veh/h)	2	425	36	32	916	10	37	19	13	1	2	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.95		0.95	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1610	1610	1610	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	2	452	38	34	974	11	39	20	14	1	2	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	393	1183	99	843	1336	15	86	38	21	33	40	61
Arrive On Green	0.01	1.00	1.00	0.03	0.84	0.84	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1521	1453	122	1533	1588	18	650	500	273	77	527	804
Grp Volume(v), veh/h	2	0	490	34	0	985	73	0	0	7	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1575	1533	0	1606	1423	0	0	1407	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	37.7	5.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.5	0.0	37.7	7.4	0.0	0.0	0.7	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.01	0.53		0.19	0.14		0.57
Lane Grp Cap(c), veh/h	393	0	1282	843	0	1351	144	0	0	134	0	0
V/C Ratio(X)	0.01	0.00	0.38	0.04	0.00	0.73	0.51	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	479	0	1282	899	0	1351	404	0	0	388	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.88	0.00	0.88	0.40	0.00	0.40	0.98	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	0.0	0.0	1.6	0.0	4.9	67.5	0.0	0.0	64.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.4	2.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.0	0.5	0.2	0.0	13.9	5.1	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	0.0	0.8	1.6	0.0	6.3	69.5	0.0	0.0	64.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		492			1019			73				7
Approach Delay, s/veh		0.8			6.1			69.5				64.6
Approach LOS		A			A			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.3	8.5	126.1		15.3	4.5	130.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		39.0	10.0	89.0		39.0	9.0	90.0				
Max Q Clear Time (g_c+I1), s		9.4	2.5	2.0		2.7	2.0	39.7				
Green Ext Time (p_c), s		0.3	0.0	3.1		0.0	0.0	9.2				
Intersection Summary												
HCM 6th Ctrl Delay				7.6								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

14: Naval Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	285	73	247	676	122	207	204	144	14	55	18
Future Volume (veh/h)	148	285	73	247	676	122	207	204	144	14	55	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.91		0.94	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	164	317	81	274	751	136	230	227	160	16	61	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	183	542	139	480	792	664	403	238	168	85	80	26
Arrive On Green	0.06	0.44	0.44	0.11	0.50	0.50	0.22	0.28	0.28	0.02	0.07	0.07
Sat Flow, veh/h	1521	1224	313	1521	1597	1340	1533	854	602	1521	1097	360
Grp Volume(v), veh/h	164	0	398	274	751	136	230	0	387	16	0	81
Grp Sat Flow(s),veh/h/ln	1521	0	1537	1521	1597	1340	1533	0	1455	1521	0	1457
Q Serve(g_s), s	7.4	0.0	23.9	11.5	55.0	5.8	11.1	0.0	32.1	0.0	0.0	6.7
Cycle Q Clear(g_c), s	7.4	0.0	23.9	11.5	55.0	5.8	11.1	0.0	32.1	0.0	0.0	6.7
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.41	1.00		0.25
Lane Grp Cap(c), veh/h	183	0	681	480	792	664	403	0	406	85	0	106
V/C Ratio(X)	0.90	0.00	0.58	0.57	0.95	0.20	0.57	0.00	0.95	0.19	0.00	0.76
Avail Cap(c_a), veh/h	183	0	681	552	838	703	403	0	412	122	0	220
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	25.8	17.4	29.5	11.7	39.9	0.0	43.5	59.4	0.0	56.0
Incr Delay (d2), s/veh	39.1	0.0	1.4	1.3	19.3	0.2	2.1	0.0	32.3	1.3	0.0	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	8.1	0.0	14.0	7.5	33.1	3.9	10.5	0.0	21.6	0.9	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	0.0	27.2	18.7	48.9	11.9	42.1	0.0	75.9	60.7	0.0	68.6
LnGrp LOS	E	A	C	B	D	B	D	A	E	E	A	E
Approach Vol, veh/h		562			1161			617				97
Approach Delay, s/veh		39.0			37.4			63.3				67.3
Approach LOS		D			D			E				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	38.8	18.6	59.0	32.0	13.5	12.1	65.5				
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	5.0	34.8	19.9	52.2	21.3	18.6	7.6	64.5				
Max Q Clear Time (g_c+1/2g), s	12.0	34.1	13.5	25.9	13.1	8.7	9.4	57.0				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.6	3.4	0.5	0.3	3.9				
Intersection Summary												
HCM 6th Ctrl Delay												45.5
HCM 6th LOS												D

HCM 6th Signalized Intersection Summary

16: Veneta Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	453	32	20	738	9	40	15	37	15	4	36
Future Volume (veh/h)	9	453	32	20	738	9	40	15	37	15	4	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.99	0.92		0.89	0.93		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	10	503	36	22	820	10	44	17	41	17	4	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	300	1051	865	544	1036	13	171	69	109	118	44	174
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	666	1597	1314	867	1574	19	451	336	529	232	212	846
Grp Volume(v), veh/h	10	503	36	22	0	830	102	0	0	61	0	0
Grp Sat Flow(s),veh/h/ln	666	1597	1314	867	0	1594	1315	0	0	1290	0	0
Q Serve(g_s), s	0.7	10.4	0.6	0.9	0.0	24.5	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	25.2	10.4	0.6	11.2	0.0	24.5	4.2	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.43		0.40	0.28		0.66
Lane Grp Cap(c), veh/h	300	1051	865	544	0	1049	348	0	0	335	0	0
V/C Ratio(X)	0.03	0.48	0.04	0.04	0.00	0.79	0.29	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	422	1343	1104	702	0	1340	484	0	0	468	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	17.1	5.6	4.0	8.4	0.0	8.1	22.5	0.0	0.0	21.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.2	0.1	0.1	0.0	5.2	1.7	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.2	0.2	5.4	0.3	0.3	0.0	12.3	2.6	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	6.9	4.0	8.5	0.0	13.2	24.1	0.0	0.0	22.8	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		549			852			102			61	
Approach Delay, s/veh		6.9			13.1			24.1			22.8	
Approach LOS		A			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.9		18.1		47.9		18.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		20.5		55.5		20.5				
Max Q Clear Time (g_c+I1), s		27.2		4.5		26.5		6.2				
Green Ext Time (p_c), s		9.4		0.5		16.9		0.9				
Intersection Summary												
HCM 6th Ctrl Delay					12.0							
HCM 6th LOS					B							

HCM 6th Signalized Intersection Summary

17: Warren Ave (SR 303) & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	211	16	94	456	100	167	487	14	55	406	110
Future Volume (veh/h)	225	211	16	94	456	100	167	487	14	55	406	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	1610	1597	1597	1597	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	239	224	17	100	485	106	178	518	15	59	432	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	1	1	1	2	2	2	3	3	3
Cap, veh/h	269	565	43	466	519	429	317	1084	31	374	719	193
Arrive On Green	0.12	0.38	0.38	0.06	0.32	0.32	0.19	0.73	0.73	0.01	0.10	0.10
Sat Flow, veh/h	1533	1476	112	1521	1597	1322	1509	2988	86	1497	2327	625
Grp Volume(v), veh/h	239	0	241	100	485	106	178	261	272	59	276	273
Grp Sat Flow(s),veh/h/ln	1533	0	1588	1521	1597	1322	1509	1506	1569	1497	1494	1458
Q Serve(g_s), s	11.9	0.0	13.2	5.2	35.3	7.1	9.6	8.7	8.8	3.2	21.2	21.5
Cycle Q Clear(g_c), s	11.9	0.0	13.2	5.2	35.3	7.1	9.6	8.7	8.8	3.2	21.2	21.5
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.06	1.00		0.43
Lane Grp Cap(c), veh/h	269	0	608	466	519	429	317	546	569	374	462	451
V/C Ratio(X)	0.89	0.00	0.40	0.21	0.93	0.25	0.56	0.48	0.48	0.16	0.60	0.61
Avail Cap(c_a), veh/h	328	0	608	614	566	468	329	546	569	391	462	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(l)	0.91	0.00	0.91	0.55	0.55	0.55	0.98	0.98	0.98	0.70	0.70	0.70
Uniform Delay (d), s/veh	27.5	0.0	26.9	24.4	39.3	29.7	22.9	11.7	11.7	27.0	46.7	46.9
Incr Delay (d2), s/veh	20.7	0.0	0.5	0.1	14.3	0.2	2.3	2.9	2.8	0.2	4.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	9.7	0.0	8.7	3.5	20.7	4.1	5.6	4.8	5.0	2.2	13.2	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	27.4	24.5	53.5	29.9	25.1	14.6	14.5	27.2	50.7	51.1
LnGrp LOS	D	A	C	C	D	C	C	B	B	C	D	D
Approach Vol, veh/h		480			691			711			608	
Approach Delay, s/veh		37.7			45.7			17.2			48.6	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	48.0	11.9	50.5	16.1	41.6	18.8	43.5				
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	5	34.0	19.0	42.5	12.5	28.0	19.0	42.5				
Max Q Clear Time (g_c+15), s	15.2	10.8	7.2	15.2	11.6	23.5	13.9	37.3				
Green Ext Time (p_c), s	0.0	3.9	0.2	1.8	0.1	1.6	0.4	1.7				

Intersection Summary

HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary

18: Park Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (veh/h)	27	175	95	7	326	23	238	180	61	13	44	47
Future Volume (veh/h)	27	175	95	7	326	23	238	180	61	13	44	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	0.94		0.99	0.94		0.90	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	34	222	120	9	413	29	301	228	77	16	56	48
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	107	518	434	66	528	37	412	260	84	125	360	277
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	105	1433	1200	10	1461	101	660	535	174	114	741	570
Grp Volume(v), veh/h	256	0	120	451	0	0	606	0	0	120	0	0
Grp Sat Flow(s),veh/h/ln	1539	0	1200	1572	0	0	1369	0	0	1425	0	0
Q Serve(g_s), s	0.0	0.0	4.2	0.6	0.0	0.0	21.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.2	0.0	4.2	15.0	0.0	0.0	23.9	0.0	0.0	2.8	0.0	0.0
Prop In Lane	0.13		1.00	0.02		0.06	0.50		0.13	0.13		0.40
Lane Grp Cap(c), veh/h	626	0	434	631	0	0	756	0	0	761	0	0
V/C Ratio(X)	0.41	0.00	0.28	0.71	0.00	0.00	0.80	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	856	0	623	876	0	0	801	0	0	807	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	13.3	16.8	0.0	0.0	13.8	0.0	0.0	8.5	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.7	3.3	0.0	0.0	6.6	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.5	0.0	2.0	9.3	0.0	0.0	12.1	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	14.0	20.1	0.0	0.0	20.4	0.0	0.0	8.7	0.0	0.0
LnGrp LOS	B	A	B	C	A	A	C	A	A	A	A	A
Approach Vol, veh/h		376		451			606			120		
Approach Delay, s/veh		14.8		20.1			20.4			8.7		
Approach LOS		B		C			C			A		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		33.0		25.8			33.0			25.8		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		30.5		30.5			30.5			30.5		
Max Q Clear Time (g_c+I1), s		25.9		9.2			4.8			17.0		
Green Ext Time (p_c), s		2.6		4.0			1.3			4.2		
Intersection Summary												
HCM 6th Ctrl Delay				18.1								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 12.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	190	48	35	250	24	47	58	54	20	34	26
Future Vol, veh/h	30	190	48	35	250	24	47	58	54	20	34	26
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	6	6	6
Mvmt Flow	35	224	56	41	294	28	55	68	64	24	40	31
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	12.8	14.2	10.8	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	45%	0%	100%	0%	100%	0%	25%
Vol Thru, %	55%	0%	0%	80%	0%	91%	43%
Vol Right, %	0%	100%	0%	20%	0%	9%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	54	30	238	35	274	80
LT Vol	47	0	30	0	35	0	20
Through Vol	58	0	0	190	0	250	34
RT Vol	0	54	0	48	0	24	26
Lane Flow Rate	124	64	35	280	41	322	94
Geometry Grp	5	5	5	5	5	5	4b
Degree of Util (X)	0.233	0.103	0.063	0.45	0.073	0.521	0.176
Departure Headway (Hd)	6.792	5.853	6.442	5.792	6.39	5.822	6.722
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	611	556	622	560	619	532
Service Time	4.546	3.607	4.187	3.536	4.132	3.563	4.783
HCM Lane V/C Ratio	0.235	0.105	0.063	0.45	0.073	0.52	0.177
HCM Control Delay	11.6	9.3	9.6	13.2	9.6	14.8	11.2
HCM Lane LOS	B	A	A	B	A	B	B
HCM 95th-tile Q	0.9	0.3	0.2	2.3	0.2	3	0.6

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	226	20	91	572	165	216
Future Volume (veh/h)	226	20	91	572	165	216
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1597	1597	1547	1547	1585	1585
Adj Flow Rate, veh/h	254	22	102	643	185	243
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	5	5	2	2
Cap, veh/h	274	24	588	1124	397	522
Arrive On Green	0.20	0.20	0.05	0.73	0.64	0.64
Sat Flow, veh/h	1380	120	1474	1547	620	815
Grp Volume(v), veh/h	277	0	102	643	0	428
Grp Sat Flow(s),veh/h/ln	1505	0	1474	1547	0	1435
Q Serve(g_s), s	21.7	0.0	2.6	23.3	0.0	18.3
Cycle Q Clear(g_c), s	21.7	0.0	2.6	23.3	0.0	18.3
Prop In Lane	0.92	0.08	1.00			0.57
Lane Grp Cap(c), veh/h	299	0	588	1124	0	919
V/C Ratio(X)	0.93	0.00	0.17	0.57	0.00	0.47
Avail Cap(c_a), veh/h	320	0	707	1124	0	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.82	0.82	0.00	1.00
Uniform Delay (d), s/veh	47.2	0.0	7.5	7.7	0.0	11.0
Incr Delay (d2), s/veh	30.7	0.0	0.1	1.7	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lt	6.1	0.0	1.4	11.8	0.0	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	77.9	0.0	7.6	9.4	0.0	12.7
LnGrp LOS	E	A	A	A	A	B
Approach Vol, veh/h	277			745	428	
Approach Delay, s/veh	77.9			9.2	12.7	
Approach LOS	E			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.7		28.3	10.3	81.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		85.5		25.5	15.5	65.5
Max Q Clear Time (g_c+I1), s		25.3		23.7	4.6	20.3
Green Ext Time (p_c), s		4.5		0.1	0.2	2.8

Intersection Summary

HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↑	↗		↕			↕	↗
Traffic Volume (veh/h)	413	351	2	0	464	113	9	7	2	103	2	351
Future Volume (veh/h)	413	351	2	0	464	113	9	7	2	103	2	351
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1597	1597	1610	1610	1610	1560	1560	1560
Adj Flow Rate, veh/h	439	373	2	0	494	120	10	7	2	110	2	373
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	1	1	0	0	0	4	4	4
Cap, veh/h	493	514	3	0	466	384	19	13	4	280	5	685
Arrive On Green	0.33	0.33	0.33	0.00	0.29	0.29	0.02	0.02	0.02	0.19	0.19	0.19
Sat Flow, veh/h	1509	1575	8	0	1597	1317	803	562	161	1460	27	1322
Grp Volume(v), veh/h	439	0	375	0	494	120	19	0	0	112	0	373
Grp Sat Flow(s),veh/h/ln	1509	0	1583	0	1597	1317	1526	0	0	1487	0	1322
Q Serve(g_s), s	33.1	0.0	25.1	0.0	35.0	8.5	1.5	0.0	0.0	7.9	0.0	22.7
Cycle Q Clear(g_c), s	33.1	0.0	25.1	0.0	35.0	8.5	1.5	0.0	0.0	7.9	0.0	22.7
Prop In Lane	1.00		0.01	0.00		1.00	0.53		0.11	0.98		1.00
Lane Grp Cap(c), veh/h	493	0	517	0	466	384	36	0	0	285	0	685
V/C Ratio(X)	0.89	0.00	0.73	0.00	1.06	0.31	0.53	0.00	0.00	0.39	0.00	0.54
Avail Cap(c_a), veh/h	493	0	517	0	466	384	76	0	0	285	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.93	0.93	1.00	0.00	0.00	0.68	0.00	0.68
Uniform Delay (d), s/veh	38.4	0.0	35.7	0.0	42.5	33.1	57.9	0.0	0.0	42.4	0.0	19.4
Incr Delay (d2), s/veh	19.0	0.0	6.2	0.0	57.1	2.0	16.3	0.0	0.0	1.6	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.2	0.0	16.0	0.0	29.5	5.4	1.3	0.0	0.0	5.4	0.0	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	0.0	41.8	0.0	99.6	35.1	74.2	0.0	0.0	44.0	0.0	20.7
LnGrp LOS	E	A	D	A	F	D	E	A	A	D	A	C
Approach Vol, veh/h		814			614			19				485
Approach Delay, s/veh		50.2			87.0			74.2				26.1
Approach LOS		D			F			E				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		7.8		44.2		28.0		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		6.0		36.0		23.0		35.0				
Max Q Clear Time (g_c+I1), s		3.5		35.1		24.7		37.0				
Green Ext Time (p_c), s		0.0		0.6		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					56.1							
HCM 6th LOS					E							

HCM 6th Signalized Intersection Summary
 22: Warren Ave (SR 303) & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔			↕↔		↔	↕↔		↔	↕↕	↔
Traffic Volume (veh/h)	664	353	18	0	374	283	40	825	8	77	582	560
Future Volume (veh/h)	664	353	18	0	374	283	40	825	8	77	582	560
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1572	1572	1597	1597	1597	1560	1560	1560
Adj Flow Rate, veh/h	678	360	18	0	382	289	41	842	8	79	594	571
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	0	3	3	1	1	1	4	4	4
Cap, veh/h	598	723	36	0	379	283	154	903	9	193	989	707
Arrive On Green	0.34	0.81	0.81	0.00	0.23	0.23	0.07	0.59	0.59	0.13	0.56	0.56
Sat Flow, veh/h	2928	1496	75	0	1704	1214	1521	3080	29	1485	2964	1311
Grp Volume(v), veh/h	678	0	378	0	351	320	41	415	435	79	594	571
Grp Sat Flow(s),veh/h/ln	1464	0	1571	0	1494	1346	1521	1518	1592	1485	1482	1311
Q Serve(g_s), s	24.5	0.0	9.3	0.0	28.0	28.0	2.4	30.0	30.0	0.0	16.0	10.6
Cycle Q Clear(g_c), s	24.5	0.0	9.3	0.0	28.0	28.0	2.4	30.0	30.0	0.0	16.0	10.6
Prop In Lane	1.00		0.05	0.00		0.90	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	598	0	759	0	349	314	154	445	467	193	989	707
V/C Ratio(X)	1.13	0.00	0.50	0.00	1.01	1.02	0.27	0.93	0.93	0.41	0.60	0.81
Avail Cap(c_a), veh/h	598	0	772	0	349	314	173	487	511	193	989	707
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00	1.67	1.67	1.67
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.58	0.58	0.80	0.80	0.80	0.53	0.53	0.53
Uniform Delay (d), s/veh	39.5	0.0	6.9	0.0	46.0	46.0	33.5	23.8	23.8	47.8	21.3	4.9
Incr Delay (d2), s/veh	79.6	0.0	0.5	0.0	38.2	43.8	0.9	24.7	23.9	0.9	1.4	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	22.0	0.0	4.2	0.0	18.7	17.8	1.6	15.1	15.6	3.8	7.2	26.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	0.0	7.4	0.0	84.2	89.8	34.4	48.5	47.7	48.7	22.7	10.3
LnGrp LOS	F	A	A	A	F	F	C	D	D	D	C	B
Approach Vol, veh/h		1056			671			891			1244	
Approach Delay, s/veh		79.2			86.9			47.4			18.6	
Approach LOS		E			F			D			B	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	40.7		64.5	10.0	45.5	31.0	33.5				
Change Period (Y+Rc), s	5.5	5.5		* 6.5	5.5	5.5	6.5	5.5				
Max Green Setting (Gmax), s	60	38.5		* 59	6.0	38.5	24.5	28.0				
Max Q Clear Time (g_c+1/2C), s	12	32.0		11.3	4.4	18.0	26.5	30.0				
Green Ext Time (p_c), s	0.1	3.2		2.6	0.0	8.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Volume (veh/h)	225	20	25	5	10	10	0	1734	3	0	1120	241
Future Volume (veh/h)	225	20	25	5	10	10	0	1734	3	0	1120	241
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1610	1610	1610	0	1597	1597	0	1560	1560
Adj Flow Rate, veh/h	234	21	26	5	10	10	0	1806	3	0	1167	251
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	0	0	0	1	1	0	4	4
Cap, veh/h	313	23	29	85	155	136	0	2180	4	0	1701	363
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	1.00	1.00	0.00	1.00	1.00
Sat Flow, veh/h	1154	104	128	220	692	608	0	3189	5	0	2504	518
Grp Volume(v), veh/h	281	0	0	25	0	0	0	881	928	0	709	709
Grp Sat Flow(s),veh/h/ln	1385	0	0	1519	0	0	0	1518	1596	0	1482	1462
Q Serve(g_s), s	22.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.7	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.83		0.09	0.20		0.40	0.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h	365	0	0	376	0	0	0	1064	1119	0	1039	1025
V/C Ratio(X)	0.77	0.00	0.00	0.07	0.00	0.00	0.00	0.83	0.83	0.00	0.68	0.69
Avail Cap(c_a), veh/h	441	0	0	456	0	0	0	1064	1119	0	1039	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15	0.15	0.00	0.70	0.70
Uniform Delay (d), s/veh	45.3	0.0	0.0	36.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	7.1	0.0	0.0	0.1	0.0	0.0	0.0	1.2	1.1	0.0	2.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	3.8	0.0	0.0	1.1	0.0	0.0	0.0	0.6	0.6	0.0	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	0.0	36.9	0.0	0.0	0.0	1.2	1.1	0.0	2.6	2.7
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		281			25			1809			1418	
Approach Delay, s/veh		52.4			36.9			1.2			2.6	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		88.6		31.4		88.6		31.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		77.5		33.5		77.5		33.5				
Max Q Clear Time (g_c+I1), s		2.0		25.7		2.0		3.6				
Green Ext Time (p_c), s		42.6		1.2		48.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↖	↑↑	↑↑	↖
Traffic Volume (veh/h)	86	45	76	1916	1298	80
Future Volume (veh/h)	86	45	76	1916	1298	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1547	1547	1585	1585	1547	1547
Adj Flow Rate, veh/h	68	69	78	1975	1338	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	2	2	5	5
Cap, veh/h	105	93	94	2571	2216	
Arrive On Green	0.07	0.07	0.12	1.00	0.75	0.00
Sat Flow, veh/h	1474	1311	1509	3091	3017	1311
Grp Volume(v), veh/h	68	69	78	1975	1338	0
Grp Sat Flow(s),veh/h/ln	1474	1311	1509	1506	1470	1311
Q Serve(g_s), s	5.4	6.2	6.1	0.0	24.7	0.0
Cycle Q Clear(g_c), s	5.4	6.2	6.1	0.0	24.7	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	105	93	94	2571	2216	
V/C Ratio(X)	0.65	0.74	0.83	0.77	0.60	
Avail Cap(c_a), veh/h	325	290	132	2571	2216	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.23	0.23	1.00	0.00
Uniform Delay (d), s/veh	54.3	54.6	51.9	0.0	6.7	0.0
Incr Delay (d2), s/veh	7.8	12.8	7.6	0.5	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	4.3	3.6	0.3	11.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.1	67.4	59.5	0.5	7.9	0.0
LnGrp LOS	E	E	E	A	A	
Approach Vol, veh/h	137			2053	1338	
Approach Delay, s/veh	64.8			2.8	7.9	
Approach LOS	E			A	A	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.0	12.0	95.0		107.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		26.5	10.5	69.5		84.5
Max Q Clear Time (g_c+I1), s		8.2	8.1	26.7		2.0
Green Ext Time (p_c), s		0.4	0.0	20.3		52.6

Intersection Summary

HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	49	147	141	51	84	177	1575	155	154	1010	40
Future Volume (veh/h)	54	49	147	141	51	84	177	1575	155	154	1010	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	56	51	9	145	53	5	182	1624	108	159	1041	39
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	3	3	3
Cap, veh/h	145	103	86	152	104	87	607	1588	708	334	1164	44
Arrive On Green	0.04	0.06	0.06	0.04	0.06	0.06	0.35	0.53	0.53	0.22	0.40	0.40
Sat Flow, veh/h	1509	1585	1324	1521	1597	1335	1509	3011	1342	1497	2936	110
Grp Volume(v), veh/h	56	51	9	145	53	5	182	1624	108	159	530	550
Grp Sat Flow(s),veh/h/ln	1509	1585	1324	1521	1597	1335	1509	1506	1342	1497	1494	1552
Q Serve(g_s), s	5.5	5.0	0.6	6.5	5.1	0.4	5.4	84.4	5.0	14.8	53.0	53.1
Cycle Q Clear(g_c), s	5.5	5.0	0.6	6.5	5.1	0.4	5.4	84.4	5.0	14.8	53.0	53.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	145	103	86	152	104	87	607	1588	708	334	592	615
V/C Ratio(X)	0.39	0.50	0.10	0.95	0.51	0.06	0.30	1.02	0.15	0.48	0.89	0.89
Avail Cap(c_a), veh/h	145	308	257	152	311	259	607	1588	708	334	779	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69
Uniform Delay (d), s/veh	67.0	72.3	20.9	73.4	72.4	32.9	33.4	37.8	11.3	54.0	45.1	45.2
Incr Delay (d2), s/veh	1.7	3.7	0.5	59.1	3.9	0.3	0.3	28.4	0.5	0.9	13.8	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	3.9	0.7	9.8	4.0	0.4	8.6	47.5	4.0	9.0	28.3	29.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	76.0	21.4	132.5	76.2	33.2	33.7	66.2	11.7	54.9	58.9	58.5
LnGrp LOS	E	E	C	F	E	C	C	F	B	D	E	E
Approach Vol, veh/h		116			203			1914			1239	
Approach Delay, s/veh		68.2			115.4			60.1			58.2	
Approach LOS		E			F			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	90.4	12.0	15.9	62.7	69.4	12.0	15.9				
Change Period (Y+Rc), s	6.0	* 6	5.5	5.5	6.0	6.0	6.0	5.5				
Max Green Setting (Gmax), s	116.0	* 84	6.5	31.1	16.0	83.4	6.0	31.1				
Max Q Clear Time (g_c+116.0), s	116.0	86.4	8.5	7.0	7.4	55.1	7.5	7.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.4	8.4	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	62.9
HCM 6th LOS	E

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	108	116	107	83	152	99	1380	127	160	1083	73
Future Volume (veh/h)	111	108	116	107	83	152	99	1380	127	160	1083	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1572	1572	1572	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	114	111	120	110	86	157	102	1423	131	165	1116	75
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	113	227	187	103	216	176	284	1830	812	330	1784	120
Arrive On Green	0.08	0.14	0.14	0.07	0.14	0.14	0.08	1.00	1.00	0.06	0.62	0.62
Sat Flow, veh/h	1509	1585	1301	1497	1572	1283	1509	3011	1336	1509	2860	192
Grp Volume(v), veh/h	114	111	120	110	86	157	102	1423	131	165	587	604
Grp Sat Flow(s),veh/h/ln	1509	1585	1301	1497	1572	1283	1509	1506	1336	1509	1506	1546
Q Serve(g_s), s	12.0	10.3	13.9	11.0	8.0	19.2	4.2	0.0	0.0	6.6	38.5	38.6
Cycle Q Clear(g_c), s	12.0	10.3	13.9	11.0	8.0	19.2	4.2	0.0	0.0	6.6	38.5	38.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	113	227	187	103	216	176	284	1830	812	330	939	965
V/C Ratio(X)	1.01	0.49	0.64	1.07	0.40	0.89	0.36	0.78	0.16	0.50	0.63	0.63
Avail Cap(c_a), veh/h	113	317	260	103	305	249	319	1830	812	388	939	965
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.46	0.46	0.46	0.76	0.76	0.76
Uniform Delay (d), s/veh	74.0	63.1	64.7	74.5	63.0	67.9	15.2	0.0	0.0	10.2	18.6	18.6
Incr Delay (d2), s/veh	86.5	1.6	3.7	108.4	1.2	23.9	0.4	1.6	0.2	0.9	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	7.7	8.5	12.1	6.0	12.1	2.5	0.7	0.1	4.2	19.3	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.5	64.7	68.3	182.9	64.2	91.8	15.6	1.6	0.2	11.1	21.0	20.9
LnGrp LOS	F	E	E	F	E	F	B	A	A	B	C	C
Approach Vol, veh/h		345			353			1656			1356	
Approach Delay, s/veh		97.6			113.4			2.3			19.7	
Approach LOS		F			F			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.8	102.2	16.0	28.0	11.2	104.8	17.0	27.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	82.0	11.0	32.0	10.0	87.0	12.0	31.0				
Max Q Clear Time (g_c+1/3), s	13.6	2.0	13.0	15.9	6.2	40.6	14.0	21.2				
Green Ext Time (p_c), s	0.2	19.2	0.0	0.9	0.1	10.9	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay											28.1	
HCM 6th LOS											C	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘		↙	↘		↙	↘	
Traffic Volume (veh/h)	0	0	2	55	0	42	1	1573	41	55	1400	0
Future Volume (veh/h)	0	0	2	55	0	42	1	1573	41	55	1400	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	0.89		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1610	1610	1610	1572	1572	1572	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	0	0	2	57	0	43	1	1622	42	57	1443	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	3	3	1	1	1	1	1	1
Cap, veh/h	0	0	93	139	0	97	343	2405	62	265	2515	0
Arrive On Green	0.00	0.00	0.08	0.08	0.00	0.08	0.00	0.80	0.80	0.05	1.00	0.00
Sat Flow, veh/h	0	0	1219	1256	0	1275	1521	3023	78	1521	3115	0
Grp Volume(v), veh/h	0	0	2	57	0	43	1	813	851	57	1443	0
Grp Sat Flow(s),veh/h/ln	0	0	1219	1256	0	1275	1521	1518	1583	1521	1518	0
Q Serve(g_s), s	0.0	0.0	0.2	7.0	0.0	5.2	0.0	37.7	38.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.2	7.3	0.0	5.2	0.0	37.7	38.0	1.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	93	139	0	97	343	1208	1260	265	2515	0
V/C Ratio(X)	0.00	0.00	0.02	0.41	0.00	0.44	0.00	0.67	0.68	0.21	0.57	0.00
Avail Cap(c_a), veh/h	0	0	190	239	0	199	417	1208	1260	299	2515	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.67	0.67	0.67	0.58	0.58	0.00
Uniform Delay (d), s/veh	0.0	0.0	68.4	71.8	0.0	70.7	3.3	7.2	7.2	8.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	2.8	0.0	4.5	0.0	2.0	2.0	0.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.1	4.3	0.0	3.3	0.0	16.0	16.8	1.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	68.6	74.6	0.0	75.2	3.3	9.2	9.2	8.4	0.6	0.0
LnGrp LOS	A	A	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		2		100				1665			1500	
Approach Delay, s/veh		68.6		74.8				9.2			0.9	
Approach LOS		E		E				A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	132.3			17.2	5.3	137.6		17.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	111.0			25.0	8.0	112.0		25.0				
Max Q Clear Time (g_c+13), s	40.0			2.2	2.0	2.0		9.3				
Green Ext Time (p_c), s	0.1	35.1		0.0	0.0	30.8		0.5				

Intersection Summary

HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	93	148	128	107	151	136	1346	43	134	1164	163
Future Volume (veh/h)	121	93	148	128	107	151	136	1346	43	134	1164	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	126	97	154	133	111	157	142	1402	45	140	1212	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	1	1	1
Cap, veh/h	143	180	151	139	190	160	460	1880	60	153	1332	592
Arrive On Green	0.05	0.11	0.11	0.06	0.12	0.12	0.26	0.63	0.63	0.07	0.44	0.44
Sat Flow, veh/h	1521	1597	1343	1509	1585	1336	1509	2977	95	1521	3035	1349
Grp Volume(v), veh/h	126	97	154	133	111	157	142	708	739	140	1212	170
Grp Sat Flow(s),veh/h/ln	1521	1597	1343	1509	1585	1336	1509	1506	1567	1521	1518	1349
Q Serve(g_s), s	6.8	9.2	11.4	10.0	10.6	15.9	4.6	52.4	52.6	9.5	59.7	12.9
Cycle Q Clear(g_c), s	6.8	9.2	11.4	10.0	10.6	15.9	4.6	52.4	52.6	9.5	59.7	12.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	143	180	151	139	190	160	460	951	989	153	1332	592
V/C Ratio(X)	0.88	0.54	1.02	0.95	0.58	0.98	0.31	0.74	0.75	0.91	0.91	0.29
Avail Cap(c_a), veh/h	155	339	285	139	337	284	460	951	989	153	1574	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	0.64	0.64	0.64	0.79	0.79	0.79
Uniform Delay (d), s/veh	72.9	67.1	28.7	72.0	66.6	50.8	43.7	20.5	20.6	39.9	41.9	28.8
Incr Delay (d2), s/veh	32.4	1.6	37.0	62.1	2.1	30.5	0.2	3.4	3.3	40.8	8.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	0.3	6.8	8.9	6.8	7.9	11.1	7.2	24.7	25.6	8.6	31.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.4	68.7	65.7	134.1	68.7	81.3	43.9	24.0	23.9	80.7	50.8	29.8
LnGrp LOS	F	E	F	F	E	F	D	C	C	F	D	C
Approach Vol, veh/h		377			401			1589			1522	
Approach Delay, s/veh		79.7			95.3			25.7			51.2	
Approach LOS		E			F			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	46.8	75.2	13.8	24.2	16.0	106.0	15.0	23.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	83.0	10.0	34.0	11.0	85.0	10.0	34.0				
Max Q Clear Time (g_c+1/6), s	10.6	61.7	8.8	17.9	11.5	54.6	12.0	13.4				
Green Ext Time (p_c), s	0.2	8.5	0.0	0.8	0.0	10.6	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay											48.1	
HCM 6th LOS											D	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔↔		↔	↑	↔	↔	↔	↔
Traffic Volume (veh/h)	37	804	91	167	892	47	54	123	108	33	60	21
Future Volume (veh/h)	37	804	91	167	892	47	54	123	108	33	60	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.96	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	39	838	95	174	929	49	56	128	112	34	62	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	2	2	2
Cap, veh/h	81	1582	177	415	2115	112	69	314	257	186	126	45
Arrive On Green	0.63	0.63	0.63	0.12	1.00	1.00	0.05	0.20	0.20	0.11	0.11	0.11
Sat Flow, veh/h	78	2504	280	1509	2905	153	1521	1597	1306	1108	1104	392
Grp Volume(v), veh/h	497	0	475	174	482	496	56	128	112	34	0	84
Grp Sat Flow(s),veh/h/ln	1461	0	1401	1509	1506	1552	1521	1597	1306	1108	0	1495
Q Serve(g_s), s	0.0	0.0	22.7	4.9	0.0	0.0	4.4	8.4	9.0	3.4	0.0	6.3
Cycle Q Clear(g_c), s	19.9	0.0	22.7	4.9	0.0	0.0	4.4	8.4	9.0	3.4	0.0	6.3
Prop In Lane	0.08		0.20	1.00		0.10	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	956	0	885	415	1097	1131	69	314	257	186	0	171
V/C Ratio(X)	0.52	0.00	0.54	0.42	0.44	0.44	0.82	0.41	0.44	0.18	0.00	0.49
Avail Cap(c_a), veh/h	956	0	885	458	1097	1131	133	552	452	305	0	330
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.61	0.61	0.61	0.69	0.69	0.69	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	12.3	8.8	0.0	0.0	56.8	42.1	42.4	48.6	0.0	49.9
Incr Delay (d2), s/veh	2.0	0.0	2.3	0.4	0.8	0.8	14.7	0.6	0.8	0.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	1.7	0.0	11.8	2.3	0.4	0.4	3.6	5.9	5.4	1.7	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	14.6	9.2	0.8	0.8	71.5	42.7	43.2	49.1	0.0	52.1
LnGrp LOS	B	A	B	A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		972			1152			296			118	
Approach Delay, s/veh		14.2			2.0			48.3			51.2	
Approach LOS		B			A			D			D	
Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		28.1		91.9	9.9	18.2	11.6	80.3				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		41.5		69.5	10.5	26.5	10.5	54.5				
Max Q Clear Time (g_c+I1), s		11.0		2.0	6.4	8.3	6.9	24.7				
Green Ext Time (p_c), s		1.2		8.2	0.0	0.5	0.1	7.9				
Intersection Summary												
HCM 6th Ctrl Delay				14.4								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

31: Naval Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	834	19	21	915	18	277	76	87	12	41	22
Future Volume (veh/h)	25	834	19	21	915	18	277	76	87	12	41	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	27	907	21	23	995	20	301	83	95	13	45	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	45	1583	37	40	1568	32	322	228	261	47	81	38
Arrive On Green	0.01	0.17	0.17	0.05	1.00	1.00	0.21	0.34	0.34	0.09	0.09	0.09
Sat Flow, veh/h	1521	3032	70	1509	3019	61	1521	673	770	133	905	429
Grp Volume(v), veh/h	27	454	474	23	496	519	301	0	178	82	0	0
Grp Sat Flow(s),veh/h/ln	1521	1518	1585	1509	1506	1574	1521	0	1443	1467	0	0
Q Serve(g_s), s	2.1	33.0	33.0	1.8	0.0	0.0	23.3	0.0	11.2	1.9	0.0	0.0
Cycle Q Clear(g_c), s	2.1	33.0	33.0	1.8	0.0	0.0	23.3	0.0	11.2	6.4	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.04	1.00		0.53	0.16		0.29
Lane Grp Cap(c), veh/h	45	792	828	40	782	817	322	0	489	166	0	0
V/C Ratio(X)	0.60	0.57	0.57	0.57	0.63	0.63	0.94	0.00	0.36	0.49	0.00	0.00
Avail Cap(c_a), veh/h	77	792	828	77	782	817	326	0	628	301	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.84	0.84	0.84	0.57	0.00	0.57	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.7	37.4	37.4	56.1	0.0	0.0	46.5	0.0	29.9	52.6	0.0	0.0
Incr Delay (d2), s/veh	9.3	2.3	2.2	10.1	3.3	3.2	22.8	0.0	0.3	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	19.3	20.0	1.4	1.3	1.3	15.0	0.0	6.4	4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	39.7	39.6	66.3	3.3	3.2	69.3	0.0	30.2	54.9	0.0	0.0
LnGrp LOS	E	D	D	E	A	A	E	A	C	D	A	A
Approach Vol, veh/h		955			1038			479			82	
Approach Delay, s/veh		40.4			4.6			54.8			54.9	
Approach LOS		D			A			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	7.7	67.2	29.9	15.2	8.1	66.8	45.1					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	48.2	25.7	22.0	6.1	48.2	52.2						
Max Q Clear Time (g_c+13), s	35.0	25.3	8.4	4.1	2.0	13.2						
Green Ext Time (p_c), s	0.0	5.0	0.0	0.3	0.0	8.4	1.2					

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

32: High Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖		↖	↖	
Traffic Volume (veh/h)	31	943	10	19	1014	15	24	25	14	36	7	56
Future Volume (veh/h)	31	943	10	19	1014	15	24	25	14	36	7	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	34	1025	11	21	1102	16	26	27	15	39	8	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	2	2	2
Cap, veh/h	296	1990	21	445	1938	28	44	103	57	55	18	135
Arrive On Green	0.07	1.00	1.00	0.02	0.43	0.43	0.03	0.11	0.11	0.04	0.12	0.12
Sat Flow, veh/h	1521	3076	33	1509	3037	44	1533	950	528	1509	153	1166
Grp Volume(v), veh/h	34	506	530	21	546	572	26	0	42	39	0	69
Grp Sat Flow(s),veh/h/ln	1521	1518	1591	1509	1506	1576	1533	0	1478	1509	0	1319
Q Serve(g_s), s	0.9	0.0	0.0	0.6	32.9	32.9	2.0	0.0	3.1	3.1	0.0	5.9
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.6	32.9	32.9	2.0	0.0	3.1	3.1	0.0	5.9
Prop In Lane	1.00		0.02	1.00		0.03	1.00		0.36	1.00		0.88
Lane Grp Cap(c), veh/h	296	982	1030	445	961	1006	44	0	160	55	0	152
V/C Ratio(X)	0.11	0.52	0.52	0.05	0.57	0.57	0.59	0.00	0.26	0.71	0.00	0.45
Avail Cap(c_a), veh/h	353	982	1030	514	961	1006	96	0	339	94	0	302
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	7.0	21.8	21.8	57.5	0.0	49.1	57.2	0.0	49.5
Incr Delay (d2), s/veh	0.1	1.5	1.4	0.0	2.4	2.3	11.6	0.0	0.9	15.5	0.0	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(95%),veh/lr	0.5	0.7	0.7	0.3	19.0	19.7	1.7	0.0	2.2	2.5	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	1.5	1.4	7.0	24.3	24.2	69.2	0.0	50.0	72.7	0.0	51.6
LnGrp LOS	B	A	A	A	C	C	E	A	D	E	A	D
Approach Vol, veh/h		1070			1139			68			108	
Approach Delay, s/veh		1.7			23.9			57.3			59.2	
Approach LOS		A			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	18.5	8.5	83.1	9.0	19.4	9.6	82.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5	27.5	8.5	54.5	7.5	27.5	8.5	54.5				
Max Q Clear Time (g_c+1/5), s	15	5.1	2.6	2.0	4.0	7.9	2.9	34.9				
Green Ext Time (p_c), s	0.0	0.2	0.0	8.7	0.0	0.3	0.0	7.6				

Intersection Summary

HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

33: Park Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	354	55	6	449	23	149	103	29	8	28	34
Future Volume (veh/h)	19	354	55	6	449	23	149	103	29	8	28	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		0.95	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1560	1560	1560	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	21	393	61	7	499	26	166	114	32	9	31	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	2	2	2
Cap, veh/h	44	671	545	16	599	31	222	121	441	73	167	441
Arrive On Green	0.03	0.43	0.43	0.01	0.41	0.41	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1497	1572	1277	1485	1467	76	376	357	1300	0	494	1302
Grp Volume(v), veh/h	21	393	61	7	0	525	280	0	32	40	0	38
Grp Sat Flow(s),veh/h/ln	1497	1572	1277	1485	0	1544	733	0	1300	494	0	1302
Q Serve(g_s), s	0.8	11.6	1.7	0.3	0.0	18.4	0.0	0.0	1.0	0.0	0.0	1.2
Cycle Q Clear(g_c), s	0.8	11.6	1.7	0.3	0.0	18.4	20.5	0.0	1.0	20.5	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.05	0.59		1.00	0.22		1.00
Lane Grp Cap(c), veh/h	44	671	545	16	0	630	343	0	441	240	0	441
V/C Ratio(X)	0.48	0.59	0.11	0.43	0.00	0.83	0.82	0.00	0.07	0.17	0.00	0.09
Avail Cap(c_a), veh/h	508	1703	1383	504	0	1672	343	0	441	240	0	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.9	13.2	10.4	29.7	0.0	16.0	20.5	0.0	13.5	15.2	0.0	13.6
Incr Delay (d2), s/veh	7.7	0.8	0.1	16.7	0.0	3.0	14.1	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.7	6.6	0.8	0.3	0.0	10.2	8.9	0.0	0.5	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	14.1	10.5	46.4	0.0	19.0	34.6	0.0	13.6	15.5	0.0	13.7
LnGrp LOS	D	B	B	D	A	B	C	A	B	B	A	B
Approach Vol, veh/h		475			532			312			78	
Approach Delay, s/veh		14.6			19.4			32.5			14.6	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	5.2	30.3		25.0	6.3	29.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	20.5	65.5		20.5	20.5	65.5				
Max Q Clear Time (g_c+I1), s		22.5	2.3	13.6		22.5	2.8	20.4				
Green Ext Time (p_c), s		0.0	0.0	3.0		0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay											20.4	
HCM 6th LOS											C	

MOVEMENT SUMMARY

Site: 34 [Washington Ave & Manette Bridge (Site Folder: 2030 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

NA
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: Washington Ave (NB)															
8	T1	All MCs	328	4.0	328	4.0	0.957	19.5	LOS E	23.2	597.4	1.00	1.48	1.86	20.4
18	R2	All MCs	586	4.0	586	4.0	0.957	19.8	LOS E	23.2	597.4	1.00	1.48	1.86	21.6
Approach			914	4.0	914	4.0	0.957	19.7	LOS B	23.2	597.4	1.00	1.48	1.86	21.2
East: Manette Bridge (WB)															
1	L2	All MCs	400	3.0	400	3.0	0.573	8.9	LOS A	4.3	110.8	0.66	0.68	0.69	24.5
16	R2	All MCs	179	3.0	179	3.0	0.573	5.6	LOS A	4.3	110.8	0.66	0.68	0.69	24.6
Approach			579	3.0	579	3.0	0.573	7.9	LOS A	4.3	110.8	0.66	0.68	0.69	24.6
North: Washington Ave (SB)															
7	L2	All MCs	381	2.0	381	2.0	0.429	7.8	LOS A	2.7	69.5	0.64	0.66	0.64	24.4
4	T1	All MCs	28	2.0	28	2.0	0.429	4.3	LOS A	2.7	69.5	0.64	0.66	0.64	22.9
Approach			409	2.0	409	2.0	0.429	7.6	LOS A	2.7	69.5	0.64	0.66	0.64	24.3
All Vehicles			1901	3.3	1901	3.3	0.957	13.5	LOS B	23.2	597.4	0.82	1.06	1.24	22.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:39:42 PM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan #554-1896-192\LOS\2030 Baseline.sip9

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	41	21	9	1023	4	47	2	262	741	24	255	0
Future Volume (veh/h)	41	21	9	1023	4	47	2	262	741	24	255	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1610	1610	1610	1597	1597	1597	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	42	21	9	1092	0	0	2	267	756	24	260	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	2	2	2	2	2	2
Cap, veh/h	217	109	47	1105	580	0	39	398	1427	65	584	0
Arrive On Green	0.24	0.24	0.24	0.36	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.00
Sat Flow, veh/h	892	446	191	3043	1597	0	2	1582	2259	81	2397	0
Grp Volume(v), veh/h	72	0	0	1092	0	0	269	0	756	138	146	0
Grp Sat Flow(s),veh/h/ln	1530	0	0	1521	1597	0	1584	0	1130	1035	1370	0
Q Serve(g_s), s	3.6	0.0	0.0	33.9	0.0	0.0	0.0	0.0	18.4	0.8	8.5	0.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	33.9	0.0	0.0	14.5	0.0	18.4	15.3	8.5	0.0
Prop In Lane	0.58		0.12	1.00		0.00	0.01		1.00	0.17		0.00
Lane Grp Cap(c), veh/h	372	0	0	1105	580	0	436	0	1427	305	345	0
V/C Ratio(X)	0.19	0.00	0.00	0.99	0.00	0.00	0.62	0.00	0.53	0.45	0.42	0.00
Avail Cap(c_a), veh/h	372	0	0	1105	580	0	480	0	1489	338	382	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.81	0.00	0.00	1.00	0.00	1.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	30.0	0.0	0.0	32.1	0.0	10.6	29.4	29.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	21.7	0.0	0.0	2.6	0.0	0.5	1.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	0.0	0.0	21.1	0.0	0.0	9.7	0.0	13.9	4.8	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	0.0	51.8	0.0	0.0	34.6	0.0	11.1	30.6	30.7	0.0
LnGrp LOS	C	A	A	D	A	A	C	A	B	C	C	A
Approach Vol, veh/h		72		1092			1025			284		
Approach Delay, s/veh		28.8		51.8			17.2			30.7		
Approach LOS		C		D			B			C		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		28.4		27.6			28.4			39.0		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		26.5		20.5			26.5			34.5		
Max Q Clear Time (g_c+I1), s		20.4		5.6			17.3			35.9		
Green Ext Time (p_c), s		3.5		0.2			1.6			0.0		

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	24	736	6	14	1163	11	6	22	9	17	6	52
Future Volume (veh/h)	24	736	6	14	1163	11	6	22	9	17	6	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	26	791	6	15	1251	12	6	24	10	18	6	56
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	86	2260	17	52	2404	23	56	98	36	68	21	92
Arrive On Green	0.80	0.80	0.80	0.80	0.80	0.80	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	54	2808	21	13	2987	28	104	1034	379	196	218	966
Grp Volume(v), veh/h	413	0	410	667	0	611	40	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	1445	0	1438	1580	0	1449	1517	0	0	1380	0	0
Q Serve(g_s), s	0.0	0.0	7.0	0.0	0.0	12.8	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	7.0	12.6	0.0	12.8	2.2	0.0	0.0	5.0	0.0	0.0
Prop In Lane	0.06		0.01	0.02		0.02	0.15		0.25	0.22		0.70
Lane Grp Cap(c), veh/h	1205	0	1158	1313	0	1166	190	0	0	180	0	0
V/C Ratio(X)	0.34	0.00	0.35	0.51	0.00	0.52	0.21	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	1205	0	1158	1313	0	1166	703	0	0	649	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.90	0.00	0.90	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.3	0.0	2.4	2.9	0.0	3.0	37.8	0.0	0.0	39.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.8	1.4	0.0	1.7	0.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	2.7	5.5	0.0	5.2	1.5	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	0.0	3.2	4.3	0.0	4.6	38.5	0.0	0.0	41.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		823			1278			40			80	
Approach Delay, s/veh		3.1			4.5			38.5			41.1	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.1		76.9		13.1		76.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		39.5		41.5		39.5		41.5				
Max Q Clear Time (g_c+I1), s		4.2		9.0		7.0		14.8				
Green Ext Time (p_c), s		0.2		12.6		0.6		18.0				
Intersection Summary												
HCM 6th Ctrl Delay					5.9							
HCM 6th LOS					A							

HCM 6th Signalized Intersection Summary

37: Burwell St (SR 304) & Naval Ave

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	633	6	25	822	23	228	365	107	39	57	151
Future Volume (veh/h)	130	633	6	25	822	23	228	365	107	39	57	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	143	696	7	27	903	25	251	401	118	43	63	166
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	171	1259	13	49	993	27	291	514	422	66	276	231
Arrive On Green	0.11	0.41	0.41	0.03	0.33	0.33	0.19	0.32	0.32	0.04	0.17	0.17
Sat Flow, veh/h	1521	3078	31	1521	3016	84	1533	1610	1322	1521	1597	1333
Grp Volume(v), veh/h	143	343	360	27	454	474	251	401	118	43	63	166
Grp Sat Flow(s),veh/h/ln	1521	1518	1592	1521	1518	1582	1533	1610	1322	1521	1597	1333
Q Serve(g_s), s	8.5	15.9	15.9	1.6	26.4	26.4	14.6	20.8	6.1	2.6	3.1	10.8
Cycle Q Clear(g_c), s	8.5	15.9	15.9	1.6	26.4	26.4	14.6	20.8	6.1	2.6	3.1	10.8
Prop In Lane	1.00		0.02	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	621	651	49	500	521	291	514	422	66	276	231
V/C Ratio(X)	0.84	0.55	0.55	0.55	0.91	0.91	0.86	0.78	0.28	0.65	0.23	0.72
Avail Cap(c_a), veh/h	223	642	673	101	520	542	575	849	697	141	391	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	20.7	20.7	43.8	29.5	29.5	36.1	28.4	23.4	43.3	32.7	35.9
Incr Delay (d2), s/veh	20.0	1.1	1.1	10.8	19.8	19.2	8.9	3.1	0.4	12.2	0.5	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	9.6	10.0	1.4	17.8	18.4	10.2	13.0	3.5	2.1	2.2	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	21.9	21.8	54.6	49.3	48.7	45.0	31.5	23.8	55.5	33.2	41.2
LnGrp LOS	E	C	C	D	D	D	D	C	C	E	C	D
Approach Vol, veh/h		846			955			770			272	
Approach Delay, s/veh		28.3			49.1			34.7			41.6	
Approach LOS		C			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	33.8	7.5	42.1	21.9	20.4	14.8	34.8				
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	5	48.5	6.1	38.9	34.5	22.5	13.5	31.5				
Max Q Clear Time (g_c+14), s	14.6	22.8	3.6	17.9	16.6	12.8	10.5	28.4				
Green Ext Time (p_c), s	0.0	3.9	0.0	5.5	0.9	0.7	0.1	1.9				
Intersection Summary												
HCM 6th Ctrl Delay											38.3	
HCM 6th LOS											D	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕↕	
Traffic Volume (veh/h)	31	744	16	8	757	5	35	28	17	0	20	6
Future Volume (veh/h)	31	744	16	8	757	5	35	28	17	0	20	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.55		0.68	1.00		0.49
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1572	1572	1572	1585	1585	1585	1560	1560	1560
Adj Flow Rate, veh/h	33	791	17	9	805	5	37	30	18	0	21	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	4	4	4
Cap, veh/h	99	2263	48	28	1275	8	74	51	25	0	112	32
Arrive On Green	0.83	0.83	0.83	0.83	0.83	0.83	0.12	0.12	0.12	0.00	0.12	0.12
Sat Flow, veh/h	92	2742	59	7	1545	10	354	427	210	0	927	265
Grp Volume(v), veh/h	425	0	416	819	0	0	85	0	0	0	0	27
Grp Sat Flow(s),veh/h/ln	1461	0	1431	1561	0	0	991	0	0	0	0	1192
Q Serve(g_s), s	0.0	0.0	11.9	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	3.4
Cycle Q Clear(g_c), s	10.6	0.0	11.9	31.6	0.0	0.0	13.6	0.0	0.0	0.0	0.0	3.4
Prop In Lane	0.08		0.04	0.01		0.01	0.44		0.21	0.00		0.22
Lane Grp Cap(c), veh/h	1230	0	1181	1311	0	0	151	0	0	0	0	144
V/C Ratio(X)	0.35	0.00	0.35	0.62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.19
Avail Cap(c_a), veh/h	1230	0	1181	1311	0	0	218	0	0	0	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.86	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	3.5	0.0	3.6	5.3	0.0	0.0	70.0	0.0	0.0	0.0	0.0	65.7
Incr Delay (d2), s/veh	0.7	0.0	0.7	2.3	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	6.1	15.2	0.0	0.0	6.4	0.0	0.0	0.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.1	0.0	4.3	7.5	0.0	0.0	71.2	0.0	0.0	0.0	0.0	65.9
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		841			819			85				27
Approach Delay, s/veh		4.2			7.5			71.2				65.9
Approach LOS		A			A			E				E
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		141.5		24.5		141.5		24.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		125.5		31.5		125.5		31.5				
Max Q Clear Time (g_c+I1), s		13.9		5.4		33.6		15.6				
Green Ext Time (p_c), s		11.3		0.1		13.5		0.3				
Intersection Summary												
HCM 6th Ctrl Delay					9.9							
HCM 6th LOS					A							

HCM 6th Signalized Intersection Summary

40: Burwell St (SR 304) & Park Ave

07/01/2024



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

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

42: Pacific Ave & Burwell St (SR 304)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔						↔	
Traffic Volume (veh/h)	22	185	185	110	249	33	0	0	0	29	80	39
Future Volume (veh/h)	22	185	185	110	249	33	0	0	0	29	80	39
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.85	0.93		0.96				1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1572	1572	1572				1597	1597	1597
Adj Flow Rate, veh/h	25	208	208	124	280	37				33	90	44
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3				1	1	1
Cap, veh/h	129	666	514	239	432	51				92	252	123
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45				0.35	0.35	0.35
Sat Flow, veh/h	66	1474	1137	274	955	112				265	723	354
Grp Volume(v), veh/h	233	0	208	441	0	0				167	0	0
Grp Sat Flow(s),veh/h/ln	1539	0	1137	1341	0	0				1342	0	0
Q Serve(g_s), s	0.0	0.0	4.9	5.9	0.0	0.0				3.7	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	4.9	10.2	0.0	0.0				3.7	0.0	0.0
Prop In Lane	0.11		1.00	0.28		0.08				0.20		0.26
Lane Grp Cap(c), veh/h	796	0	514	721	0	0				468	0	0
V/C Ratio(X)	0.29	0.00	0.40	0.61	0.00	0.00				0.36	0.00	0.00
Avail Cap(c_a), veh/h	1830	0	1303	1607	0	0				1036	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	7.4	8.6	0.0	0.0				9.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.8	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
%ile BackOfQ(95%),veh/ln	1.8	0.0	1.7	4.2	0.0	0.0				1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.0	7.9	9.5	0.0	0.0				10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				B	A	A
Approach Vol, veh/h		441			441						167	
Approach Delay, s/veh		7.6			9.5						10.2	
Approach LOS		A			A						B	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		22.2		18.0		22.2						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		46.0		31.0		46.0						
Max Q Clear Time (g_c+I1), s		6.9		5.7		12.2						
Green Ext Time (p_c), s		2.6		1.1		3.8						
Intersection Summary												
HCM 6th Ctrl Delay											8.8	
HCM 6th LOS											A	

HCM 6th Signalized Intersection Summary

43: Washington Ave & Burwell St (SR 304)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Volume (veh/h)	212	6	0	0	3	3	135	303	0	6	0	148
Future Volume (veh/h)	212	6	0	0	3	3	135	303	0	6	0	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.95		1.00	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	0	0	1610	1610	1535	1535	1535	1547	1547	1547
Adj Flow Rate, veh/h	259	7	0	0	4	4	165	370	0	7	0	180
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	0	0	0	0	6	6	6	5	5	5
Cap, veh/h	360	10	0	0	9	9	413	795	0	100	13	475
Arrive On Green	0.24	0.24	0.00	0.00	0.01	0.01	0.40	0.40	0.00	0.40	0.00	0.40
Sat Flow, veh/h	1495	40	0	0	731	731	669	2048	0	13	33	1181
Grp Volume(v), veh/h	266	0	0	0	0	8	289	246	0	187	0	0
Grp Sat Flow(s),veh/h/ln	1535	0	0	0	0	1463	1320	1327	0	1226	0	0
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.2	1.8	5.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.0	0.0	0.0	0.2	6.0	5.3	0.0	4.2	0.0	0.0
Prop In Lane	0.97		0.00	0.00		0.50	0.57		0.00	0.04		0.96
Lane Grp Cap(c), veh/h	370	0	0	0	0	19	675	533	0	588	0	0
V/C Ratio(X)	0.72	0.00	0.00	0.00	0.00	0.43	0.43	0.46	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	999	0	0	0	0	578	1955	1879	0	1816	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.7	0.0	0.0	0.0	0.0	19.2	8.7	8.6	0.0	8.3	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.0	0.0	5.7	0.5	0.7	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	0.0	0.0	0.2	2.7	2.3	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	0.0	0.0	0.0	0.0	24.9	9.2	9.4	0.0	8.6	0.0	0.0
LnGrp LOS	B	A	A	A	A	C	A	A	A	A	A	A
Approach Vol, veh/h		266			8			535				187
Approach Delay, s/veh		15.6			24.9			9.3				8.6
Approach LOS		B			C			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.3		13.9		20.3		5.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		25.5		55.5		15.5				
Max Q Clear Time (g_c+I1), s		8.0		8.2		6.2		2.2				
Green Ext Time (p_c), s		5.1		1.2		1.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												11.0
HCM 6th LOS												B

HCM 6th Signalized Intersection Summary
 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	35	38	545	173	117	26	726	0	40	1114	6
Future Volume (veh/h)	40	35	38	545	173	117	26	726	0	40	1114	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1547	1547	1547	1597	1597	1597	1597	1597	0	1585	1585	1585
Adj Flow Rate, veh/h	43	37	40	580	184	0	28	772	0	43	1185	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	1	1	1	1	1	0	2	2	2
Cap, veh/h	69	120	101	609	378		53	1387	0	71	1439	7
Arrive On Green	0.05	0.08	0.08	0.21	0.24	0.00	0.04	0.46	0.00	0.05	0.47	0.47
Sat Flow, veh/h	1474	1547	1311	2951	1597	1354	1521	3115	0	1509	3072	16
Grp Volume(v), veh/h	43	37	40	580	184	0	28	772	0	43	581	610
Grp Sat Flow(s),veh/h/ln	1474	1547	1311	1476	1597	1354	1521	1518	0	1509	1506	1582
Q Serve(g_s), s	2.2	1.8	2.3	15.1	7.7	0.0	1.4	14.4	0.0	2.2	25.9	25.9
Cycle Q Clear(g_c), s	2.2	1.8	2.3	15.1	7.7	0.0	1.4	14.4	0.0	2.2	25.9	25.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	69	120	101	609	378		53	1387	0	71	706	741
V/C Ratio(X)	0.62	0.31	0.39	0.95	0.49		0.53	0.56	0.00	0.61	0.82	0.82
Avail Cap(c_a), veh/h	532	559	473	609	378		314	3346	0	311	1660	1744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	33.8	34.1	30.4	25.5	0.0	36.8	15.3	0.0	36.3	17.8	17.8
Incr Delay (d2), s/veh	8.9	1.5	2.5	25.2	1.0	0.0	3.0	0.3	0.0	3.1	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	1.3	1.4	11.8	5.3	0.0	1.0	8.1	0.0	1.5	13.3	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	35.3	36.5	55.6	26.5	0.0	39.7	15.6	0.0	39.4	19.7	19.6
LnGrp LOS	D	D	D	E	C		D	B	A	D	B	B
Approach Vol, veh/h		120			764			800			1234	
Approach Delay, s/veh		39.3			48.6			16.4			20.3	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	40.8	20.0	10.0	7.6	39.9	7.6	22.4				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.0	4.0	4.5	4.0	4.0				
Max Green Setting (Gmax), s	16.0	85.5	16.0	28.0	16.0	85.5	28.0	16.0				
Max Q Clear Time (g_c+1), s	13.4	27.9	17.1	4.3	4.2	16.4	4.2	9.7				
Green Ext Time (p_c), s	0.0	8.5	0.0	0.3	0.0	5.3	0.1	0.5				

Intersection Summary

HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↑↑	↕	↕	↑↑↑	
Traffic Volume (veh/h)	29	2	36	406	16	49	10	701	5	8	1580	35
Future Volume (veh/h)	29	2	36	406	16	49	10	701	5	8	1580	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1610	1610	1610	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	30	2	37	478	0	0	10	723	5	8	1629	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	0	0	0	2	2	2	1	1	1
Cap, veh/h	36	2	45	581	305	0	22	1716	765	18	2296	51
Arrive On Green	0.06	0.06	0.06	0.19	0.00	0.00	0.01	0.57	0.57	0.01	0.57	0.57
Sat Flow, veh/h	600	40	740	3067	1610	0	1509	3011	1343	1521	4048	89
Grp Volume(v), veh/h	69	0	0	478	0	0	10	723	5	8	1029	636
Grp Sat Flow(s),veh/h/ln	1381	0	0	1533	1610	0	1509	1506	1343	1521	1278	1581
Q Serve(g_s), s	5.3	0.0	0.0	16.0	0.0	0.0	0.7	14.5	0.2	0.6	31.2	31.2
Cycle Q Clear(g_c), s	5.3	0.0	0.0	16.0	0.0	0.0	0.7	14.5	0.2	0.6	31.2	31.2
Prop In Lane	0.43		0.54	1.00		0.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	84	0	0	581	305	0	22	1716	765	18	1450	897
V/C Ratio(X)	0.82	0.00	0.00	0.82	0.00	0.00	0.46	0.42	0.01	0.44	0.71	0.71
Avail Cap(c_a), veh/h	207	0	0	1879	986	0	219	2394	1068	221	2032	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	41.6	0.0	0.0	52.3	13.0	9.9	52.5	16.8	16.8
Incr Delay (d2), s/veh	17.7	0.0	0.0	2.3	0.0	0.0	5.5	0.2	0.0	6.2	1.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	0.0	0.0	10.3	0.0	0.0	0.5	7.9	0.1	0.4	13.6	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	43.9	0.0	0.0	57.8	13.3	9.9	58.7	17.7	18.3
LnGrp LOS	E	A	A	D	A	A	E	B	A	E	B	B
Approach Vol, veh/h		69		478			738			1673		
Approach Delay, s/veh		67.3		43.9			13.8			18.1		
Approach LOS		E		D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	65.7		24.7	5.8	65.9		10.5				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0				
Max Green Setting (Gmax), s	15.5	85.0		65.5	15.5	85.0		16.0				
Max Q Clear Time (g_c+1), s	12.7	33.2		18.0	2.6	16.5		7.3				
Green Ext Time (p_c), s	0.0	27.5		1.4	0.0	8.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

46: Union Ave/Auto Center Blvd & Werner Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Traffic Volume (veh/h)	5	148	69	469	105	82	6	45	125	145	437	13
Future Volume (veh/h)	5	148	69	469	105	82	6	45	125	145	437	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1547	1547	1547	1572	1572	1572	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	5	156	73	494	111	86	6	47	0	153	460	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	3	3	3
Cap, veh/h	12	192	90	502	414	321	107	516		488	494	15
Arrive On Green	0.01	0.19	0.19	0.34	0.50	0.50	0.33	0.33	0.00	0.33	0.33	0.33
Sat Flow, veh/h	1474	996	466	1497	821	636	920	1585	1343	1345	1518	46
Grp Volume(v), veh/h	5	0	229	494	0	197	6	47	0	153	0	474
Grp Sat Flow(s),veh/h/ln	1474	0	1462	1497	0	1458	920	1585	1343	1345	0	1564
Q Serve(g_s), s	0.3	0.0	13.9	30.2	0.0	7.2	0.6	1.9	0.0	8.2	0.0	27.1
Cycle Q Clear(g_c), s	0.3	0.0	13.9	30.2	0.0	7.2	27.7	1.9	0.0	10.2	0.0	27.1
Prop In Lane	1.00		0.32	1.00		0.44	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	12	0	282	502	0	735	107	516		488	0	509
V/C Ratio(X)	0.43	0.00	0.81	0.98	0.00	0.27	0.06	0.09		0.31	0.00	0.93
Avail Cap(c_a), veh/h	391	0	704	502	0	735	107	516		501	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.6	0.0	35.7	30.5	0.0	13.1	43.6	21.7	0.0	25.2	0.0	30.2
Incr Delay (d2), s/veh	32.7	0.0	7.7	35.9	0.0	0.3	0.3	0.1	0.0	0.6	0.0	23.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.4	0.0	9.2	21.7	0.0	4.1	0.3	1.3	0.0	4.9	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.3	0.0	43.4	66.3	0.0	13.4	43.9	21.8	0.0	25.8	0.0	54.0
LnGrp LOS	E	A	D	E	A	B	D	C		C	A	D
Approach Vol, veh/h		234		691		53		627				
Approach Delay, s/veh		44.2		51.2		24.3		47.1				
Approach LOS		D		D		C		D				
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	6.2	52.1	34.1	35.0	23.3	34.1						
Change Period (Y+Rc), s	5.5	* 5.5	4.0	4.0	5.5	4.0						
Max Green Setting (Gmax)	24.5	* 36	26.0	31.0	44.5	31.0						
Max Q Clear Time (g_c+1)	12.3	9.2	29.7	32.2	15.9	29.1						
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	1.9	1.0						

Intersection Summary

HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↖	↖	↖		↖	↖	
Traffic Volume (veh/h)	19	439	27	146	664	114	17	15	89	211	64	121
Future Volume (veh/h)	19	439	27	146	664	114	17	15	89	211	64	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1560	1560	1560	1547	1547	1547	1547	1547	1547
Adj Flow Rate, veh/h	20	457	28	152	692	0	18	16	0	220	67	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	5	5	5	5	5	5
Cap, veh/h	45	852	52	200	1188		451	385		500	385	
Arrive On Green	0.03	0.30	0.30	0.13	0.40	0.00	0.25	0.25	0.00	0.25	0.25	0.00
Sat Flow, veh/h	1509	2877	176	1485	2964	1322	1303	1547	0	1364	1547	0
Grp Volume(v), veh/h	20	238	247	152	692	0	18	16	0	220	67	0
Grp Sat Flow(s),veh/h/ln	1509	1506	1547	1485	1482	1322	1303	1547	0	1364	1547	0
Q Serve(g_s), s	0.5	5.6	5.6	4.2	7.7	0.0	0.5	0.3	0.0	6.1	1.4	0.0
Cycle Q Clear(g_c), s	0.5	5.6	5.6	4.2	7.7	0.0	1.9	0.3	0.0	6.5	1.4	0.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	45	446	458	200	1188		451	385		500	385	
V/C Ratio(X)	0.45	0.53	0.54	0.76	0.58		0.04	0.04		0.44	0.17	
Avail Cap(c_a), veh/h	376	1447	1487	1075	4255		1069	1120		1147	1120	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.1	12.4	12.4	17.6	9.9	0.0	13.2	12.0	0.0	14.5	12.4	0.0
Incr Delay (d2), s/veh	9.6	1.4	1.4	8.2	0.5	0.0	0.1	0.1	0.0	1.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	2.9	3.0	3.0	3.3	0.0	0.2	0.2	0.0	3.3	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	13.8	13.8	25.8	10.4	0.0	13.2	12.1	0.0	15.8	12.9	0.0
LnGrp LOS	C	B	B	C	B		B	B		B	B	
Approach Vol, veh/h		505			844			34			287	
Approach Delay, s/veh		14.4			13.2			12.7			15.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	21.4		15.0	10.2	17.0		15.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.5	60.5		30.5	30.5	40.5		30.5				
Max Q Clear Time (g_c+1), s	9.7	9.7		3.9	6.2	7.6		8.5				
Green Ext Time (p_c), s	0.0	6.6		0.2	0.7	4.4		2.3				

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

48: National Ave & Loxie Eagans Blvd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	186	127	27	514	10	167	87	27	6	89	329
Future Volume (veh/h)	228	186	127	27	514	10	167	87	27	6	89	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1572	1572	1572	1597	1597	1597	1585	1585	1585	1560	1560	1560
Adj Flow Rate, veh/h	248	202	138	29	559	11	182	95	29	7	97	358
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	2	2	2	4	4	4
Cap, veh/h	223	602	391	53	712	14	202	105	260	21	294	267
Arrive On Green	0.15	0.35	0.35	0.04	0.23	0.23	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1497	1732	1126	1521	3044	60	1008	526	1297	105	1450	1318
Grp Volume(v), veh/h	248	173	167	29	279	291	277	0	29	104	0	358
Grp Sat Flow(s),veh/h/ln	1497	1494	1364	1521	1518	1587	1534	0	1297	1555	0	1318
Q Serve(g_s), s	12.5	7.2	7.7	1.6	14.5	14.5	14.8	0.0	1.5	4.8	0.0	17.0
Cycle Q Clear(g_c), s	12.5	7.2	7.7	1.6	14.5	14.5	14.8	0.0	1.5	4.8	0.0	17.0
Prop In Lane	1.00		0.83	1.00		0.04	0.66		1.00	0.07		1.00
Lane Grp Cap(c), veh/h	223	519	474	53	355	371	307	0	260	315	0	267
V/C Ratio(X)	1.11	0.33	0.35	0.54	0.78	0.79	0.90	0.00	0.11	0.33	0.00	1.34
Avail Cap(c_a), veh/h	223	747	682	109	642	671	311	0	263	315	0	267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	20.2	20.4	39.8	30.2	30.2	32.8	0.0	27.5	28.6	0.0	33.5
Incr Delay (d2), s/veh	93.7	0.4	0.4	8.3	3.8	3.7	27.4	0.0	0.2	0.6	0.0	176.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	6.2	4.4	4.3	1.3	9.2	9.6	12.3	0.0	0.9	3.3	0.0	29.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.4	20.6	20.8	48.1	34.0	33.9	60.2	0.0	27.6	29.2	0.0	210.2
LnGrp LOS	F	C	C	D	C	C	E	A	C	C	A	F
Approach Vol, veh/h		588			599			306				462
Approach Delay, s/veh		66.6			34.6			57.1				169.5
Approach LOS		E			C			E				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	33.7		21.5	17.0	24.1		21.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.0	42.0		17.0	12.5	35.5		17.0				
Max Q Clear Time (g_c+1), s	13.6	9.7		19.0	14.5	16.5		16.8				
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	3.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												79.6
HCM 6th LOS												E

Intersection

Intersection Delay, s/veh 65.6
 Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑			↑
Traffic Vol, veh/h	97	0	69	0	0	827
Future Vol, veh/h	97	0	69	0	0	827
Peak Hour Factor	0.91	0.91	0.91	0.91	0.92	0.92
Heavy Vehicles, %	4	4	3	3	1	1
Mvmt Flow	107	0	76	0	0	899
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.9	8.9	76.9
HCM LOS	B	A	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	0%
Vol Thru, %	100%	0%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	69	97	827
LT Vol	0	97	0
Through Vol	69	0	827
RT Vol	0	0	0
Lane Flow Rate	76	107	899
Geometry Grp	1	1	1
Degree of Util (X)	0.108	0.183	1.086
Departure Headway (Hd)	5.301	6.425	4.351
Convergence, Y/N	Yes	Yes	Yes
Cap	680	562	836
Service Time	3.301	4.425	2.376
HCM Lane V/C Ratio	0.112	0.19	1.075
HCM Control Delay	8.9	10.9	76.9
HCM Lane LOS	A	B	F
HCM 95th-tile Q	0.4	0.7	23.3

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	142	72	81	208	200	85
Future Vol, veh/h	142	72	81	208	200	85
Conflicting Peds, #/hr	3	1	1	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	4	4
Mvmt Flow	148	75	84	217	208	89

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	644	257	300	0	-	0
Stage 1	256	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.11	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.209	-	-	-
Pot Cap-1 Maneuver	436	779	1267	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	401	777	1264	-	-	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	2.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1264	-	479	-	-
HCM Lane V/C Ratio	0.067	-	0.465	-	-
HCM Control Delay (s)	8.1	0	18.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.4	-	-

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	76	170	3	2	118	9	4	10	1	5	15	69
Future Vol, veh/h	76	170	3	2	118	9	4	10	1	5	15	69
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	6	6	6
Mvmt Flow	95	213	4	3	148	11	5	13	1	6	19	86
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	8.7	8.3	8.5
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	31%	2%	6%
Vol Thru, %	67%	68%	91%	17%
Vol Right, %	7%	1%	7%	78%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	249	129	89
LT Vol	4	76	2	5
Through Vol	10	170	118	15
RT Vol	1	3	9	69
Lane Flow Rate	19	311	161	111
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.387	0.204	0.143
Departure Headway (Hd)	5.137	4.477	4.546	4.642
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	803	789	771
Service Time	3.184	2.504	2.578	2.68
HCM Lane V/C Ratio	0.027	0.387	0.204	0.144
HCM Control Delay	8.3	10.3	8.7	8.5
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.8	0.8	0.5

Intersection

Intersection Delay, s/veh 11.2

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	25	203	17	26	4	243	58	33	3	60	17
Future Vol, veh/h	16	25	203	17	26	4	243	58	33	3	60	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	0	0	0	3	3	3	6	6	6
Mvmt Flow	17	27	218	18	28	4	261	62	35	3	65	18
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.7	9.8	12.1	9.4
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	1%	36%	100%	0%
Vol Thru, %	0%	64%	0%	11%	55%	0%	78%
Vol Right, %	0%	36%	0%	88%	9%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	243	91	14	230	47	3	77
LT Vol	243	0	14	2	17	3	0
Through Vol	0	58	0	25	26	0	60
RT Vol	0	33	0	203	4	0	17
Lane Flow Rate	261	98	15	247	51	3	83
Geometry Grp	5	5	5	5	4b	5	5
Degree of Util (X)	0.432	0.141	0.027	0.353	0.087	0.005	0.134
Departure Headway (Hd)	5.958	5.198	6.274	5.151	6.171	6.482	5.822
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	598	681	567	691	584	555	619
Service Time	3.758	2.998	4.055	2.931	4.175	4.187	3.526
HCM Lane V/C Ratio	0.436	0.144	0.026	0.357	0.087	0.005	0.134
HCM Control Delay	13.3	8.9	9.2	10.8	9.8	9.2	9.4
HCM Lane LOS	B	A	A	B	A	A	A
HCM 95th-tile Q	2.2	0.5	0.1	1.6	0.3	0	0.5

MOVEMENT SUMMARY

Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2030 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
East: Harkins St (WB)															
6	T1	All MCs	239	1.8	239	1.8	0.317	7.9	LOS A	1.9	47.4	0.66	0.66	0.66	33.9
16	R2	All MCs	38	1.8	38	1.8	0.317	7.6	LOS A	1.9	47.4	0.66	0.66	0.66	33.6
Approach			277	1.8	277	1.8	0.317	7.8	LOS A	1.9	47.4	0.66	0.66	0.66	33.9
North: Wheaton Way (SB)															
7u	U	All MCs	1	2.4	1	2.4	0.313	12.3	LOS B	1.9	48.4	0.48	0.59	0.48	33.9
7	L2	All MCs	44	2.4	44	2.4	0.313	10.3	LOS B	1.9	48.4	0.48	0.59	0.48	33.9
14	R2	All MCs	294	2.4	294	2.4	0.313	5.8	LOS A	1.9	48.4	0.48	0.59	0.48	34.2
Approach			339	2.4	339	2.4	0.313	6.4	LOS A	1.9	48.4	0.48	0.59	0.48	34.2
West: Manette Bridge (EB)															
5	L2	All MCs	542	2.1	542	2.1	0.682	9.5	LOS A	7.7	196.2	0.37	0.53	0.37	33.0
2	T1	All MCs	335	2.1	335	2.1	0.682	5.2	LOS A	7.7	196.2	0.37	0.53	0.37	33.6
Approach			877	2.1	877	2.1	0.682	7.9	LOS A	7.7	196.2	0.37	0.53	0.37	33.3
All Vehicles			1493	2.1	1493	2.1	0.682	7.5	LOS A	7.7	196.2	0.45	0.57	0.45	33.6

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:39:19 PM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2030 Baseline.sip9

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖							↗
Traffic Vol, veh/h	0	0	0	96	17	0	0	0	0	0	1	74
Future Vol, veh/h	0	0	0	96	17	0	0	0	0	0	1	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	6	6	6	0	0	0	1	1	1
Mvmt Flow	0	0	0	108	19	0	0	0	0	0	1	83

Major/Minor	Major2			Minor2		
Conflicting Flow All	0	0	0	-	235	22
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.16	-	-	-	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.254	-	-	-	4.009	3.309
Pot Cap-1 Maneuver	-	-	0	0	667	1058
Stage 1	-	-	0	0	712	-
Stage 2	-	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	0	1058
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-

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

Minor Lane/Major Mvmt	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1058
HCM Lane V/C Ratio	-	-	0.079
HCM Control Delay (s)	-	-	8.7
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.3

HCM 6th TWSC
 85: Lebo Blvd/Tracyton Beach Rd & Sheridan Rd

07/01/2024

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	38	328	44	50	202
Future Vol, veh/h	30	38	328	44	50	202
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	31	40	342	46	52	210

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	679	365	0	0	388
Stage 1	365	-	-	-	-
Stage 2	314	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	420	685	-	-	1182
Stage 1	707	-	-	-	-
Stage 2	745	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	402	685	-	-	1182
Mov Cap-2 Maneuver	402	-	-	-	-
Stage 1	707	-	-	-	-
Stage 2	712	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	523	1182
HCM Lane V/C Ratio	-	-	0.135	0.044
HCM Control Delay (s)	-	-	13	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	8	316	53	12	406	10	87	15	46	18	5	7
Future Vol, veh/h	8	316	53	12	406	10	87	15	46	18	5	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	5	5	5	2	2	2	0	0	0
Mvmt Flow	9	367	62	14	472	12	101	17	53	21	6	8
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	20.1	25.9	12.3	10.5
HCM LOS	C	D	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	100%	0%	100%	0%	60%
Vol Thru, %	10%	0%	86%	0%	98%	17%
Vol Right, %	31%	0%	14%	0%	2%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	148	8	369	12	416	30
LT Vol	87	8	0	12	0	18
Through Vol	15	0	316	0	406	5
RT Vol	46	0	53	0	10	7
Lane Flow Rate	172	9	429	14	484	35
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.307	0.016	0.687	0.025	0.782	0.067
Departure Headway (Hd)	6.422	6.372	5.763	6.342	5.818	6.899
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	561	626	563	619	515
Service Time	4.495	4.124	3.515	4.091	3.567	4.998
HCM Lane V/C Ratio	0.308	0.016	0.685	0.025	0.782	0.068
HCM Control Delay	12.3	9.2	20.3	9.3	26.4	10.5
HCM Lane LOS	B	A	C	A	D	B
HCM 95th-tile Q	1.3	0	5.4	0.1	7.4	0.2

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	0	0	0	111	4	227	53	110	0	0	103	283
Future Vol, veh/h	0	0	0	111	4	227	53	110	0	0	103	283
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	2	2	2	2	2	4	4	4
Mvmt Flow	0	0	0	116	4	236	55	115	0	0	107	295

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	332	332	115	107	0	-	-
Stage 1	225	225	-	-	-	-	-
Stage 2	107	107	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	663	588	937	1484	-	0	0
Stage 1	812	718	-	-	-	0	0
Stage 2	917	807	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	636	0	937	1484	-	-	-
Mov Cap-2 Maneuver	636	0	-	-	-	-	-
Stage 1	780	0	-	-	-	-	-
Stage 2	917	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	2.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1484	-	636	937	-
HCM Lane V/C Ratio	0.037	-	0.188	0.252	-
HCM Control Delay (s)	7.5	0	12	10.1	-
HCM Lane LOS	A	A	B	B	-
HCM 95th %tile Q(veh)	0.1	-	0.7	1	-

Intersection												
Int Delay, s/veh	16.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	94	0	387	0	0	0	0	81	23	204	200	0
Future Vol, veh/h	94	0	387	0	0	0	0	81	23	204	200	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	0	0	0	7	7	7	2	2	2
Mvmt Flow	100	0	412	0	0	0	0	86	24	217	213	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	745	757	213	-	0	0	110	0	0
Stage 1	647	647	-	-	-	-	-	-	-
Stage 2	98	110	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	383	338	830	0	-	-	1480	-	0
Stage 1	523	468	-	0	-	-	-	-	0
Stage 2	928	806	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	319	0	830	-	-	-	1480	-	-
Mov Cap-2 Maneuver	319	0	-	-	-	-	-	-	-
Stage 1	523	0	-	-	-	-	-	-	-
Stage 2	774	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.4	0	4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	632	1480	-
HCM Lane V/C Ratio	-	-	0.81	0.147	-
HCM Control Delay (s)	-	-	30.4	7.8	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	8.2	0.5	-

Intersection

Int Delay, s/veh 20.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Vol, veh/h	0	433	358	363	676	0	0	0	0	46	0	119
Future Vol, veh/h	0	433	358	363	676	0	0	0	0	46	0	119
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Stop
Storage Length	-	-	175	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	4	4	4
Mvmt Flow	0	466	385	390	727	0	0	0	0	49	0	128

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	-	469	0	0	1742	1976	366
Stage 1	-	-	-	-	-	-	1507	1507	-
Stage 2	-	-	-	-	-	-	235	469	-
Critical Hdwy	-	-	-	4.16	-	-	6.88	6.58	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	5.88	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.88	5.58	-
Follow-up Hdwy	-	-	-	2.23	-	-	3.54	4.04	3.34
Pot Cap-1 Maneuver	0	-	0	1082	-	0	76	60	625
Stage 1	0	-	0	-	-	0	166	179	-
Stage 2	0	-	0	-	-	0	776	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1082	-	-	~ 30	0	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 30	0	-
Stage 1	-	-	-	-	-	-	166	0	-
Stage 2	-	-	-	-	-	-	307	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.5	177
HCM LOS			F

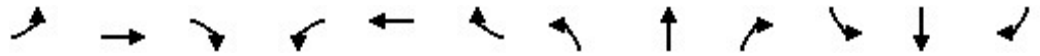
Minor Lane/Major Mvmt	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1082	-	30	624
HCM Lane V/C Ratio	-	0.361	-	1.649	0.205
HCM Control Delay (s)	-	10.2	1.5\$	603.1	12.3
HCM Lane LOS	-	B	A	F	B
HCM 95th %tile Q(veh)	-	1.7	-	5.7	0.8

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↗			
Traffic Volume (veh/h)	179	316	0	0	802	278	417	0	193	0	0	0
Future Volume (veh/h)	179	316	0	0	802	278	417	0	193	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1585	1585	1560	1560	1560			
Adj Flow Rate, veh/h	190	336	0	0	853	0	444	0	205			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	4	4	4			
Cap, veh/h	0	1272	0	0	1272		567	0	502			
Arrive On Green	0.00	0.42	0.00	0.00	0.42	0.00	0.38	0.00	0.38			
Sat Flow, veh/h	0	3091	0	0	3170	0	1485	0	1315			
Grp Volume(v), veh/h	0	336	0	0	853	0	444	0	205			
Grp Sat Flow(s),veh/h/ln	0	1506	0	0	1506	0	1485	0	1315			
Q Serve(g_s), s	0.0	3.4	0.0	0.0	10.7	0.0	12.4	0.0	5.4			
Cycle Q Clear(g_c), s	0.0	3.4	0.0	0.0	10.7	0.0	12.4	0.0	5.4			
Prop In Lane	0.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1272	0	0	1272		567	0	502			
V/C Ratio(X)	0.00	0.26	0.00	0.00	0.67		0.78	0.00	0.41			
Avail Cap(c_a), veh/h	0	4710	0	0	4132		956	0	846			
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	8.8	0.0	0.0	10.9	0.0	12.8	0.0	10.6			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.6	0.0	2.4	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	0.0	1.5	0.0	0.0	5.0	0.0	6.3	0.0	2.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	0.0	0.0	11.5	0.0	15.2	0.0	11.2			
LnGrp LOS	A	A	A	A	B		B	A	B			
Approach Vol, veh/h		336			853			649				
Approach Delay, s/veh		8.9			11.5			13.9				
Approach LOS		A			B			B				
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	24.4		22.5		24.4						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	5.0	64.4		30.2		73.4						
Max Q Clear Time (g_c+I1), s	0.0	12.7		14.4		5.4						
Green Ext Time (p_c), s	0.0	7.1		3.2		2.4						

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	54	0	30	38	1	22	39	1547	50	39	1369	43
Future Volume (veh/h)	54	0	30	38	1	22	39	1547	50	39	1369	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1397	1397	1397	1572	1572	1572	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	56	0	31	39	1	23	40	1595	52	40	1411	44
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	17	17	17	3	3	3	1	1	1	2	2	2
Cap, veh/h	142	0	112	143	5	122	313	2393	78	258	2379	74
Arrive On Green	0.10	0.00	0.10	0.10	0.10	0.10	0.03	0.80	0.80	0.03	0.80	0.80
Sat Flow, veh/h	1183	0	1140	1326	54	1240	1521	2997	97	1509	2980	93
Grp Volume(v), veh/h	56	0	31	39	0	24	40	805	842	40	712	743
Grp Sat Flow(s),veh/h/ln	1183	0	1140	1326	0	1294	1521	1518	1577	1509	1506	1567
Q Serve(g_s), s	7.1	0.0	3.9	4.4	0.0	2.7	0.7	35.5	36.0	0.7	28.2	28.4
Cycle Q Clear(g_c), s	9.8	0.0	3.9	8.3	0.0	2.7	0.7	35.5	36.0	0.7	28.2	28.4
Prop In Lane	1.00		1.00	1.00		0.96	1.00		0.06	1.00		0.06
Lane Grp Cap(c), veh/h	142	0	112	143	0	127	313	1212	1259	258	1202	1251
V/C Ratio(X)	0.39	0.00	0.28	0.27	0.00	0.19	0.13	0.66	0.67	0.15	0.59	0.59
Avail Cap(c_a), veh/h	269	0	234	285	0	265	371	1212	1259	315	1202	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.41	0.41	0.41	0.79	0.79	0.79
Uniform Delay (d), s/veh	69.1	0.0	65.2	69.0	0.0	64.6	5.4	6.8	6.8	7.2	6.0	6.0
Incr Delay (d2), s/veh	1.8	0.0	1.3	1.0	0.0	0.7	0.1	1.2	1.2	0.2	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.2	2.8	0.0	1.6	0.4	13.8	14.5	0.6	12.7	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.9	0.0	66.5	70.1	0.0	65.3	5.4	8.0	8.0	7.5	7.7	7.7
LnGrp LOS	E	A	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		87			63			1687			1495	
Approach Delay, s/veh		69.3			68.3			7.9			7.7	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	128.5		19.3	8.1	128.5		19.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	86.0		32.0	10.0	102.0		32.0				
Max Q Clear Time (g_c+1), s	12.5	38.0		11.8	2.7	30.4		10.3				
Green Ext Time (p_c), s	0.0	19.6		0.3	0.0	16.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	560	353	40	366	4	632	141	33	139	646	53
Future Volume (veh/h)	21	560	353	40	366	4	632	141	33	139	646	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1522	1522	1522	1510	1510	1510	1585	1585	1585
Adj Flow Rate, veh/h	22	583	0	42	381	4	658	147	34	145	673	55
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	7	7	7	8	8	8	2	2	2
Cap, veh/h	26	618		50	621	7	235	332	77	170	368	312
Arrive On Green	0.02	0.40	0.00	0.03	0.41	0.41	0.16	0.28	0.28	0.11	0.23	0.23
Sat Flow, veh/h	1485	1560	1322	1450	1503	16	1438	1186	274	1509	1585	1343
Grp Volume(v), veh/h	22	583	0	42	0	385	658	0	181	145	673	55
Grp Sat Flow(s),veh/h/ln	1485	1560	1322	1450	0	1519	1438	0	1460	1509	1585	1343
Q Serve(g_s), s	1.7	41.8	0.0	3.3	0.0	23.1	18.9	0.0	11.8	10.9	26.9	3.8
Cycle Q Clear(g_c), s	1.7	41.8	0.0	3.3	0.0	23.1	18.9	0.0	11.8	10.9	26.9	3.8
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	26	618		50	0	627	235	0	409	170	368	312
V/C Ratio(X)	0.85	0.94		0.85	0.00	0.61	2.81	0.00	0.44	0.85	1.83	0.18
Avail Cap(c_a), veh/h	51	673		50	0	662	235	0	409	294	368	312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	33.7	0.0	55.7	0.0	26.8	48.5	0.0	34.3	50.5	44.5	35.6
Incr Delay (d2), s/veh	38.9	21.2	0.0	72.1	0.0	2.3	824.4	0.0	0.6	10.5	383.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	25.7	0.0	3.9	0.0	13.2	94.8	0.0	7.5	8.1	78.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.7	54.9	0.0	127.8	0.0	29.1	872.9	0.0	34.8	61.0	428.1	35.8
LnGrp LOS	F	D		F	A	C	F	A	C	E	F	D
Approach Vol, veh/h		605		427		839		873		873		
Approach Delay, s/veh		56.4		38.8		692.1		342.4		342.4		
Approach LOS		E		D		F		F		F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	51.3	24.0	32.0	6.6	53.2	18.4	37.6				
Change Period (Y+Rc), s	4.6	5.4	5.1	5.1	4.6	* 5.4	5.4	* 5.1				
Max Green Setting (Gmax), s	4.0	50.0	18.9	26.9	4.0	* 51	22.6	* 23				
Max Q Clear Time (g_c+1/3), s	15.3	43.8	20.9	28.9	3.7	25.1	12.9	13.8				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	4.2	0.2	0.5				

Intersection Summary

HCM 6th Ctrl Delay	339.0
HCM 6th LOS	F

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	1	118	9	1	16	22	446	6	12	742	3
Future Volume (veh/h)	248	1	118	9	1	16	22	446	6	12	742	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1560	1560	1560	1510	1510	1510	1560	1560	1560
Adj Flow Rate, veh/h	270	1	128	10	1	0	24	485	7	13	807	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	8	8	8	4	4	4
Cap, veh/h	428	2	304	159	87		149	842	714	405	853	723
Arrive On Green	0.19	0.23	0.23	0.01	0.06	0.00	0.03	0.56	0.56	0.02	0.55	0.55
Sat Flow, veh/h	1497	10	1324	1485	1560	1322	1438	1510	1279	1485	1560	1322
Grp Volume(v), veh/h	270	0	129	10	1	0	24	485	7	13	807	3
Grp Sat Flow(s),veh/h/ln	1497	0	1334	1485	1560	1322	1438	1510	1279	1485	1560	1322
Q Serve(g_s), s	17.1	0.0	8.7	0.7	0.1	0.0	0.8	22.1	0.3	0.4	51.3	0.1
Cycle Q Clear(g_c), s	17.1	0.0	8.7	0.7	0.1	0.0	0.8	22.1	0.3	0.4	51.3	0.1
Prop In Lane	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	0	307	159	87		149	842	714	405	853	723
V/C Ratio(X)	0.63	0.00	0.42	0.06	0.01		0.16	0.58	0.01	0.03	0.95	0.00
Avail Cap(c_a), veh/h	769	0	480	306	89		189	842	714	558	959	813
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	34.7	46.0	47.1	0.0	22.6	15.2	10.4	12.2	22.5	10.9
Incr Delay (d2), s/veh	1.5	0.0	0.9	0.2	0.1	0.0	0.5	0.9	0.0	0.0	16.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	0.6	0.0	5.3	0.5	0.0	0.0	0.6	12.1	0.1	0.2	29.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	0.0	35.6	46.2	47.2	0.0	23.1	16.1	10.4	12.2	38.8	10.9
LnGrp LOS	D	A	D	D	D		C	B	B	B	D	B
Approach Vol, veh/h		399			11			516			823	
Approach Delay, s/veh		36.2			46.3			16.4			38.3	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	65.0	5.5	28.8	7.5	63.8	23.9	10.4				
Change Period (Y+Rc), s	4.5	6.0	4.0	4.5	4.5	6.0	4.0	4.5				
Max Green Setting (Gmax), s	12.8	58.2	12.0	38.0	6.0	65.0	44.0	6.0				
Max Q Clear Time (g_c+I), s	12.4	24.1	2.7	10.7	2.8	53.3	19.1	2.1				
Green Ext Time (p_c), s	0.0	3.4	0.0	0.8	0.0	4.5	0.8	0.0				

Intersection Summary

HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	19	115	34	7	169	18	79	25	15	8	20	8
Future Volume (veh/h)	19	115	34	7	169	18	79	25	15	8	20	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1585	1585	1585	1535	1535	1535
Adj Flow Rate, veh/h	20	124	37	8	182	19	85	27	16	9	22	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	6	6	6
Cap, veh/h	231	305	85	200	380	39	554	146	56	272	307	102
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	93	1108	309	29	1381	141	784	466	179	144	981	327
Grp Volume(v), veh/h	181	0	0	209	0	0	128	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln1509	0	0	0	1551	0	0	1428	0	0	1452	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	0.0	2.2	0.0	0.0	1.2	0.0	0.0	0.4	0.0	0.0
Prop In Lane	0.11		0.20	0.04		0.09	0.66		0.12	0.22		0.22
Lane Grp Cap(c), veh/h	621	0	0	619	0	0	755	0	0	681	0	0
V/C Ratio(X)	0.29	0.00	0.00	0.34	0.00	0.00	0.17	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	2585	0	0	2657	0	0	2561	0	0	2509	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.8	0.0	0.0	5.9	0.0	0.0	5.0	0.0	0.0	4.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.5	0.0	0.0	0.6	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	0.0	0.0	6.2	0.0	0.0	5.1	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		181			209			128				40
Approach Delay, s/veh		6.0			6.2			5.1				4.7
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.1		9.3		10.1		9.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		31.0		31.0		31.0				
Max Q Clear Time (g_c+I1), s		3.2		3.9		2.4		4.2				
Green Ext Time (p_c), s		0.7		1.1		0.2		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				5.8								
HCM 6th LOS				A								

MOVEMENT SUMMARY

 Site: 328 [SR 3 & Ariport Rd (Site Folder: 2030 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] ft				
South: SR 3															
8	T1	All MCs	826	4.0	826	4.0	0.625	5.3	LOS A	5.3	136.1	0.23	0.42	0.23	38.1
18	R2	All MCs	27	4.0	27	4.0	0.625	5.0	LOS A	5.3	136.1	0.23	0.42	0.23	29.7
Approach			852	4.0	852	4.0	0.625	5.3	LOS A	5.3	136.1	0.23	0.42	0.23	37.8
East: Ariport Rd															
1	L2	All MCs	48	8.0	48	8.0	0.142	9.4	LOS A	0.7	18.5	0.64	0.66	0.64	27.0
16	R2	All MCs	63	8.0	63	8.0	0.142	5.5	LOS A	0.7	18.5	0.64	0.66	0.64	27.3
Approach			110	8.0	110	8.0	0.142	7.2	LOS A	0.7	18.5	0.64	0.66	0.64	27.2
North: SR 3															
7	L2	All MCs	33	5.0	33	5.0	0.701	11.1	LOS B	7.1	185.0	0.34	0.43	0.34	29.2
4	T1	All MCs	901	5.0	901	5.0	0.701	5.3	LOS A	7.1	185.0	0.34	0.43	0.34	37.5
Approach			934	5.0	934	5.0	0.701	5.6	LOS A	7.1	185.0	0.34	0.43	0.34	37.1
All Vehicles			1897	4.7	1897	4.7	0.701	5.5	LOS A	7.1	185.0	0.31	0.44	0.31	36.6

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 11:34:15 AM

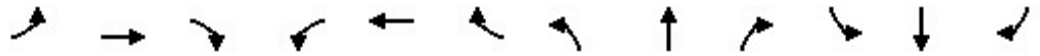
Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSD Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2030 Baseline.sip9

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑		↑		↑	↑	↑	↑
Traffic Volume (veh/h)	0	346	165	268	214	0	33	0	153	504	124	7
Future Volume (veh/h)	0	346	165	268	214	0	33	0	153	504	124	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1547	1547	1522	1522	0	1384	0	1384	1560	1560	1560
Adj Flow Rate, veh/h	0	402	192	312	249	0	38	0	0	365	453	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	5	5	7	7	0	18	0	18	4	4	4
Cap, veh/h	0	1307	583	361	1766	0	0	0	0	467	491	0
Arrive On Green	0.00	0.44	0.44	0.21	1.00	0.00	0.00	0.00	0.00	0.31	0.31	0.00
Sat Flow, veh/h	0	3017	1311	2812	2968	0	0	0	0	1485	1560	1322
Grp Volume(v), veh/h	0	402	192	312	249	0	0	0.0	0	365	453	0
Grp Sat Flow(s),veh/h/ln	0	1470	1311	1406	1446	0	0	0	0	1485	1560	1322
Q Serve(g_s), s	0.0	10.6	11.4	12.8	0.0	0.0	0.0	0.0	0.0	26.8	33.7	0.0
Cycle Q Clear(g_c), s	0.0	10.6	11.4	12.8	0.0	0.0	0.0	0.0	0.0	26.8	33.7	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1307	583	361	1766	0	0	0	0	467	491	0
V/C Ratio(X)	0.00	0.31	0.33	0.86	0.14	0.00	0.00	0.00	0.00	0.78	0.92	0.00
Avail Cap(c_a), veh/h	0	1307	583	434	1766	0	0	0	0	501	526	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.98	0.98	0.00	0.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	21.4	21.7	46.1	0.0	0.0	0.0	0.0	0.0	37.4	39.7	0.0
Incr Delay (d2), s/veh	0.0	0.6	1.5	15.3	0.2	0.0	0.0	0.0	0.0	7.6	21.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	6.7	6.7	8.4	0.1	0.0	0.0	0.0	0.0	15.9	22.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.0	23.2	61.4	0.2	0.0	0.0	0.0	0.0	45.0	61.3	0.0
LnGrp LOS	A	C	C	E	A	A	A	A	A	D	E	D
Approach Vol, veh/h		594			561							818
Approach Delay, s/veh		22.4			34.2							54.1
Approach LOS		C			C							D
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			19.9	57.9		42.2		77.8				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			18.5	31.5		40.5		54.5				
Max Q Clear Time (g_c+I1), s			14.8	13.4		35.7		2.0				
Green Ext Time (p_c), s			0.6	3.7		2.1		2.1				
Intersection Summary												
HCM 6th Ctrl Delay			38.9									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

3: SR 3 NB Off-Ramp/SR 3 NB On-Ramp & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	920	0	0	440	722	53	1	107	0	0	0
Future Volume (veh/h)	83	920	0	0	440	722	53	1	107	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1547	1547	0	0	1572	1572	1510	1510	1510			
Adj Flow Rate, veh/h	97	1070	0	0	512	0	62	1	0			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	5	5	0	0	3	3	8	8	8			
Cap, veh/h	993	2535	0	0	614		77	1				
Arrive On Green	1.00	1.00	0.00	0.00	0.34	0.00	0.05	0.05	0.00			
Sat Flow, veh/h	1474	3017	0	0	3066	1332	1416	23	1279			
Grp Volume(v), veh/h	97	1070	0	0	512	0	63	0	0			
Grp Sat Flow(s),veh/h/ln	1474	1470	0	0	1494	1332	1439	0	1279			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	18.9	0.0	5.2	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	18.9	0.0	5.2	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	993	2535	0	0	614		78	0				
V/C Ratio(X)	0.10	0.42	0.00	0.00	0.83		0.81	0.00				
Avail Cap(c_a), veh/h	993	2535	0	0	1693		336	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.70	0.70	0.00	0.00	0.85	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	37.5	0.0	56.1	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	10.9	0.0	17.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/lr	0.0	0.2	0.0	0.0	10.9	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	48.4	0.0	73.4	0.0	0.0			
LnGrp LOS	A	A	A	A	D		E	A				
Approach Vol, veh/h	1167				512		63					
Approach Delay, s/veh	0.3				48.4		73.4					
Approach LOS	A				D		E					
Timer - Assigned Phs				4		6		7		8		
Phs Duration (G+Y+Rc), s				108.5		11.5		78.8		29.7		
Change Period (Y+Rc), s				5.0		5.0		5.0		5.0		
Max Green Setting (Gmax), s				82.0		28.0		9.0		68.0		
Max Q Clear Time (g_c+I1), s				2.0		7.2		2.0		20.9		
Green Ext Time (p_c), s				10.2		0.2		0.1		3.7		

Intersection Summary

HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

4: Shorewood Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	929	31	5	969	15	17	2	1	44	0	80
Future Volume (veh/h)	37	929	31	5	969	15	17	2	1	44	0	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		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		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1560	1560	1560	1447	1447	1447	1585	1585	1585
Adj Flow Rate, veh/h	42	1056	0	6	1101	17	19	2	1	50	0	91
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	4	4	4	13	13	13	2	2	2
Cap, veh/h	267	1141		681	2194	977	118	10	3	191	0	124
Arrive On Green	0.08	0.77	0.00	0.78	1.00	1.00	0.09	0.09	0.09	0.09	0.00	0.09
Sat Flow, veh/h	1485	2964	1322	1485	2964	1320	672	110	37	1416	0	1334
Grp Volume(v), veh/h	42	1056	0	6	1101	17	22	0	0	50	0	91
Grp Sat Flow(s),veh/h/ln	1485	1482	1322	1485	1482	1320	818	0	0	1416	0	1334
Q Serve(g_s), s	2.2	34.3	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	8.0
Cycle Q Clear(g_c), s	2.2	34.3	0.0	0.0	0.0	0.0	5.7	0.0	0.0	4.0	0.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	0.86		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	267	1141		681	2194	977	132	0	0	191	0	124
V/C Ratio(X)	0.16	0.93		0.01	0.50	0.02	0.17	0.00	0.00	0.26	0.00	0.73
Avail Cap(c_a), veh/h	335	1544		681	2194	977	342	0	0	436	0	356
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.88	0.88	0.00	0.87	0.87	0.87	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	12.4	0.0	6.1	0.0	0.0	53.0	0.0	0.0	51.2	0.0	53.0
Incr Delay (d2), s/veh	0.2	12.6	0.0	0.0	0.7	0.0	0.6	0.0	0.0	0.7	0.0	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	9.7	0.0	0.1	0.4	0.0	1.2	0.0	0.0	2.6	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	25.0	0.0	6.1	0.7	0.0	53.6	0.0	0.0	51.9	0.0	61.1
LnGrp LOS	C	C		A	A	A	D	A	A	D	A	E
Approach Vol, veh/h		1098			1124			22				141
Approach Delay, s/veh		25.0			0.7			53.6				57.9
Approach LOS		C			A			D				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.1	52.2	51.7		16.1	9.5	94.3				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		32.0	10.0	* 63		32.0	10.0	62.5				
Max Q Clear Time (g_c+I1), s		7.7	2.0	36.3		10.0	4.2	2.0				
Green Ext Time (p_c), s		0.1	0.0	9.9		0.5	0.0	13.3				
Intersection Summary												
HCM 6th Ctrl Delay											15.8	
HCM 6th LOS											B	
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	969	25	18	1011	0	73	0	13	0	0	0
Future Volume (veh/h)	0	969	25	18	1011	0	73	0	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1522	1522	1522	1610	1610	1610
Adj Flow Rate, veh/h	0	1101	28	20	1149	0	83	0	15	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	3	3	3	7	7	7	0	0	0
Cap, veh/h	667	2278	995	266	1220	0	165	0	131	0	125	0
Arrive On Green	0.00	1.00	1.00	0.05	0.82	0.00	0.08	0.00	0.08	0.00	0.00	0.00
Sat Flow, veh/h	1485	2964	1294	1497	3066	0	1351	0	1280	0	1610	0
Grp Volume(v), veh/h	0	1101	28	20	1149	0	83	0	15	0	0	0
Grp Sat Flow(s),veh/h/ln	1485	1482	1294	1497	1494	0	1351	0	1280	0	1610	0
Q Serve(g_s), s	0.0	0.0	0.0	1.0	36.7	0.0	7.2	0.0	1.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.0	36.7	0.0	7.2	0.0	1.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	667	2278	995	266	1220	0	165	0	131	0	125	0
V/C Ratio(X)	0.00	0.48	0.03	0.08	0.94	0.00	0.50	0.00	0.11	0.00	0.00	0.00
Avail Cap(c_a), veh/h	667	2278	995	354	1531	0	431	0	383	0	443	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.88	0.88	0.88	0.88	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	22.6	9.9	0.0	54.4	0.0	49.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.1	13.8	0.0	2.4	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.4	0.0	0.6	9.4	0.0	4.7	0.0	0.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	22.7	23.7	0.0	56.7	0.0	49.3	0.0	0.0	0.0
LnGrp LOS	A	A	A	C	C	A	E	A	D	A	A	A
Approach Vol, veh/h		1129			1169			98				0
Approach Delay, s/veh		0.6			23.7			55.6				0.0
Approach LOS		A			C			E				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.3	51.2	54.5		14.3	7.9	97.8				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		33.0	10.0	* 62		33.0	10.0	61.5				
Max Q Clear Time (g_c+I1), s		9.2	0.0	38.7		0.0	3.0	2.0				
Green Ext Time (p_c), s		0.4	0.0	10.3		0.0	0.0	13.3				

Intersection Summary

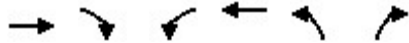
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (veh/h)	943	26	36	1017	52	59
Future Volume (veh/h)	943	26	36	1017	52	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1572	1572	1585	1585	1560	1560
Adj Flow Rate, veh/h	1084	30	41	1169	60	68
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	2	2	4	4
Cap, veh/h	2302	1004	506	2558	100	138
Arrive On Green	1.00	1.00	0.07	1.00	0.07	0.07
Sat Flow, veh/h	3066	1303	1509	3091	1485	1322
Grp Volume(v), veh/h	1084	30	41	1169	60	68
Grp Sat Flow(s),veh/h/ln	1494	1303	1509	1506	1485	1322
Q Serve(g_s), s	0.0	0.0	0.6	0.0	4.7	5.8
Cycle Q Clear(g_c), s	0.0	0.0	0.6	0.0	4.7	5.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2302	1004	506	2558	100	138
V/C Ratio(X)	0.47	0.03	0.08	0.46	0.60	0.49
Avail Cap(c_a), veh/h	2302	1004	588	2558	421	424
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	0.86	0.86	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	1.8	0.0	54.4	50.7
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.5	5.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	0.2	0.3	3.5	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.6	0.0	1.9	0.5	60.0	53.4
LnGrp LOS	A	A	A	A	E	D
Approach Vol, veh/h	1114			1210	128	
Approach Delay, s/veh	0.6			0.6	56.5	
Approach LOS	A			A	E	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			9.5	97.4	13.1	106.9
Change Period (Y+Rc), s			5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s			11.0	60.0	34.0	76.0
Max Q Clear Time (g_c+I1), s			2.6	2.0	7.8	2.0
Green Ext Time (p_c), s			0.0	13.0	0.4	14.8
Intersection Summary						
HCM 6th Ctrl Delay			3.5			
HCM 6th LOS			A			

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	847	105	247	1016	1	58	0	202	0	1	1
Future Volume (veh/h)	0	847	105	247	1016	1	58	0	202	0	1	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1522	1522	1522	1610	1610	1610
Adj Flow Rate, veh/h	0	931	0	271	1116	1	64	0	222	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	4	3	3	3	7	7	7	0	0	0
Cap, veh/h	1	1057		508	2247	2	317	0	246	0	141	141
Arrive On Green	0.00	0.47	0.00	0.68	1.00	1.00	0.19	0.00	0.19	0.00	0.19	0.19
Sat Flow, veh/h	1485	2964	1322	1497	3063	3	1341	0	1284	0	735	735
Grp Volume(v), veh/h	0	931	0	271	544	573	64	0	222	0	0	2
Grp Sat Flow(s),veh/h/ln	1485	1482	1322	1497	1494	1572	1341	0	1284	0	0	1471
Q Serve(g_s), s	0.0	34.0	0.0	10.9	0.0	0.0	4.8	0.0	20.3	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.0	34.0	0.0	10.9	0.0	0.0	5.0	0.0	20.3	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	1	1057		508	1096	1153	317	0	246	0	0	282
V/C Ratio(X)	0.00	0.88		0.53	0.50	0.50	0.20	0.00	0.90	0.00	0.00	0.01
Avail Cap(c_a), veh/h	130	1445		508	1096	1153	401	0	326	0	0	374
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.88	0.00	0.74	0.74	0.74	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.2	0.0	14.5	0.0	0.0	41.3	0.0	47.4	0.0	0.0	39.3
Incr Delay (d2), s/veh	0.0	9.4	0.0	0.8	1.2	1.1	0.3	0.0	22.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	17.4	0.0	5.1	0.7	0.7	2.9	0.0	12.6	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.6	0.0	15.3	1.2	1.1	41.6	0.0	69.9	0.0	0.0	39.3
LnGrp LOS	A	D		B	A	A	D	A	E	A	A	D
Approach Vol, veh/h		931		1388			286					2
Approach Delay, s/veh		38.6		3.9			63.6					39.3
Approach LOS		D		A			E					D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.5	45.2	47.3		27.5	0.0	92.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.5	17.5	58.5		30.5	10.5	65.5				
Max Q Clear Time (g_c+I1), s		22.3	12.9	36.0		2.1	0.0	2.0				
Green Ext Time (p_c), s		0.7	0.3	6.8		0.0	0.0	9.4				

Intersection Summary

HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	959	41	29	1064	40	47	27	53	89	21	158
Future Volume (veh/h)	57	959	41	29	1064	40	47	27	53	89	21	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	0.98		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1572	1572	1572	1560	1560	1560
Adj Flow Rate, veh/h	62	1042	45	32	1157	43	51	29	58	97	23	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	3	3	3	3	3	3	4	4	4
Cap, veh/h	394	1074	464	391	1070	466	121	118	98	312	27	199
Arrive On Green	0.53	0.72	0.72	0.26	0.36	0.36	0.04	0.07	0.07	0.13	0.17	0.17
Sat Flow, veh/h	1485	2964	1281	1497	2987	1301	1497	1572	1311	1485	158	1182
Grp Volume(v), veh/h	62	1042	45	32	1157	43	51	29	58	97	0	195
Grp Sat Flow(s),veh/h/ln	1485	1482	1281	1497	1494	1301	1497	1572	1311	1485	0	1340
Q Serve(g_s), s	2.6	39.1	1.2	1.9	43.0	2.6	0.0	2.1	5.1	0.0	0.0	17.0
Cycle Q Clear(g_c), s	2.6	39.1	1.2	1.9	43.0	2.6	0.0	2.1	5.1	0.0	0.0	17.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	394	1074	464	391	1070	466	121	118	98	312	0	226
V/C Ratio(X)	0.16	0.97	0.10	0.08	1.08	0.09	0.42	0.25	0.59	0.31	0.00	0.86
Avail Cap(c_a), veh/h	394	1111	480	391	1070	466	160	472	393	312	0	413
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	15.9	10.7	33.5	38.5	25.5	55.2	52.3	53.7	43.6	0.0	48.5
Incr Delay (d2), s/veh	0.2	16.5	0.3	0.1	52.1	0.4	4.9	1.1	5.6	0.6	0.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	11.4	0.7	1.3	32.5	1.6	3.0	1.6	3.3	4.7	0.0	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	32.4	11.0	33.5	90.6	25.9	60.1	53.4	59.3	44.2	0.0	58.0
LnGrp LOS	C	C	B	C	F	C	E	D	E	D	A	E
Approach Vol, veh/h		1149			1232			138			292	
Approach Delay, s/veh		31.0			86.8			58.4			53.4	
Approach LOS		C			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	14.0	36.4	48.5	9.9	25.2	36.9	48.0				
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	30.0	36.0	10.0	45.0	8.0	37.0	12.0	43.0				
Max Q Clear Time (g_c+1/2g), s	11.0	7.1	3.9	41.1	2.0	19.0	4.6	45.0				
Green Ext Time (p_c), s	0.1	0.3	0.0	2.4	0.1	1.1	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	59.1
HCM 6th LOS	E

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

07/01/2024

Intersection												
Int Delay, s/veh	11											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↔			↔	
Traffic Vol, veh/h	16	1049	3	28	1055	8	12	11	9	22	0	67
Future Vol, veh/h	16	1049	3	28	1055	8	12	11	9	22	0	67
Conflicting Peds, #/hr	3	0	2	2	0	3	2	0	2	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	22	22	22	0	0	0
Mvmt Flow	17	1128	3	30	1134	9	13	12	10	24	0	72

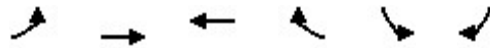
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1146	0	0	1133	0	0	1794	2370	569	1809	2369	578
Stage 1	-	-	-	-	-	-	1164	1164	-	1202	1202	-
Stage 2	-	-	-	-	-	-	630	1206	-	607	1167	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.94	6.94	7.34	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.94	5.94	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.94	5.94	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.72	4.22	3.52	3.5	4	3.3
Pot Cap-1 Maneuver	594	-	-	607	-	-	41	26	418	50	35	464
Stage 1	-	-	-	-	-	-	176	229	-	199	260	-
Stage 2	-	-	-	-	-	-	391	218	-	455	270	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	593	-	-	606	-	-	32	24	416	28	32	462
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	24	-	28	32	-
Stage 1	-	-	-	-	-	-	171	222	-	193	246	-
Stage 2	-	-	-	-	-	-	313	207	-	408	262	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			288.9			171.5		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	37	593	-	-	606	-	-	96
HCM Lane V/C Ratio	0.93	0.029	-	-	0.05	-	-	0.997
HCM Control Delay (s)	288.9	11.3	-	-	11.3	-	-	171.5
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.4	0.1	-	-	0.2	-	-	6

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

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	620	0	252	8	0	701
Future Volume (veh/h)	620	0	252	8	0	701
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1560	1560	1572	1572	0	1560
Adj Flow Rate, veh/h	689	0	280	9	0	779
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	3	3	0	4
Cap, veh/h	1652	1475	965	31	0	0
Arrive On Green	0.57	0.00	0.65	0.65	0.00	0.00
Sat Flow, veh/h	2882	1560	3033	95	0	
Grp Volume(v), veh/h	689	0	141	148	0.0	
Grp Sat Flow(s),veh/h/ln	1441	1560	1494	1555		
Q Serve(g_s), s	16.1	0.0	4.8	4.9		
Cycle Q Clear(g_c), s	16.1	0.0	4.8	4.9		
Prop In Lane	1.00			0.06		
Lane Grp Cap(c), veh/h	1652	1475	488	508		
V/C Ratio(X)	0.42	0.00	0.29	0.29		
Avail Cap(c_a), veh/h	1652	1475	492	512		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	14.4	0.0	14.8	14.8		
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.8	0.0	2.8	2.9		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.6	0.0	15.2	15.2		
LnGrp LOS	B	A	B	B		
Approach Vol, veh/h		689	289			
Approach Delay, s/veh		14.6	15.2			
Approach LOS		B	B			
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	75.3	44.7			120.0	
Change Period (Y+Rc), s	6.5	5.5			6.5	
Max Green Setting (Gmax), s	38.5	39.5			83.5	
Max Q Clear Time (g_c+I1), s	18.1	6.9			0.0	
Green Ext Time (p_c), s	3.3	2.0			0.0	
Intersection Summary						
HCM 6th Ctrl Delay			14.8			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 11: Wycoff Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	594	6	15	229	8	2	7	45	10	15	3
Future Volume (veh/h)	4	594	6	15	229	8	2	7	45	10	15	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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	1597	1597	1597	1610	1610	1610	1585	1585	1585	1610	1610	1610
Adj Flow Rate, veh/h	4	639	6	16	246	9	2	8	48	11	16	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	0	0	2	2	2	0	0	0
Cap, veh/h	1001	1300	12	747	1291	47	32	12	64	62	58	9
Arrive On Green	0.01	1.00	1.00	0.03	1.00	1.00	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1521	1580	15	1533	1542	56	21	215	1131	374	1025	155
Grp Volume(v), veh/h	4	0	645	16	0	255	58	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1594	1533	0	1598	1366	0	0	1554	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.2	0.0	0.0	5.0	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.04	0.03		0.83	0.37		0.10
Lane Grp Cap(c), veh/h	1001	0	1312	747	0	1338	108	0	0	129	0	0
V/C Ratio(X)	0.00	0.00	0.49	0.02	0.00	0.19	0.54	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	1118	0	1312	831	0	1338	236	0	0	267	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.98	0.00	0.98	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.7	0.0	0.0	1.5	0.0	0.0	55.8	0.0	0.0	54.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.3	0.0	0.0	0.3	4.1	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.0	0.9	0.1	0.0	0.2	3.4	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.7	0.0	1.3	1.5	0.0	0.3	59.8	0.0	0.0	55.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		649			271			58			30	
Approach Delay, s/veh		1.3			0.4			59.8			55.4	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.8	6.5	102.7		10.8	4.7	104.5				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	81.0		18.0	10.0	80.0				
Max Q Clear Time (g_c+I1), s		7.0	2.2	2.0		4.2	2.1	2.0				
Green Ext Time (p_c), s		0.2	0.0	5.7		0.1	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay				6.0								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	19	518	121	102	207	8	33	53	39	21	193	14
Future Volume (veh/h)	19	518	121	102	207	8	33	53	39	21	193	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	21	569	133	112	227	9	36	58	43	23	212	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	817	779	182	607	997	40	123	145	108	228	239	17
Arrive On Green	0.05	1.00	1.00	0.06	0.87	0.87	0.03	0.17	0.17	0.02	0.16	0.16
Sat Flow, veh/h	1509	1236	289	1521	1526	60	1509	844	626	1521	1474	104
Grp Volume(v), veh/h	21	0	702	112	0	236	36	0	101	23	0	227
Grp Sat Flow(s),veh/h/ln	1509	0	1525	1521	0	1586	1509	0	1470	1521	0	1578
Q Serve(g_s), s	0.6	0.0	0.0	3.0	0.0	2.9	2.4	0.0	7.3	1.5	0.0	16.9
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.0	0.0	2.9	2.4	0.0	7.3	1.5	0.0	16.9
Prop In Lane	1.00		0.19	1.00		0.04	1.00		0.43	1.00		0.07
Lane Grp Cap(c), veh/h	817	0	961	607	0	1037	123	0	253	228	0	256
V/C Ratio(X)	0.03	0.00	0.73	0.18	0.00	0.23	0.29	0.00	0.40	0.10	0.00	0.89
Avail Cap(c_a), veh/h	905	0	961	659	0	1037	211	0	319	331	0	342
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	0.98	0.00	0.98	0.88	0.00	0.88	0.93	0.00	0.93
Uniform Delay (d), s/veh	7.0	0.0	0.0	6.3	0.0	2.9	41.8	0.0	44.2	41.3	0.0	49.2
Incr Delay (d2), s/veh	0.0	0.0	4.3	0.1	0.0	0.5	0.4	0.0	0.7	0.1	0.0	16.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	2.1	1.7	0.0	1.8	1.6	0.0	5.0	1.0	0.0	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	0.0	4.3	6.4	0.0	3.4	42.2	0.0	44.8	41.4	0.0	65.9
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	E
Approach Vol, veh/h		723			348			137			250	
Approach Delay, s/veh		4.4			4.4			44.1			63.6	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	24.7	9.9	79.6	7.1	23.5	7.0	82.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	26.0	10.0	58.0	10.0	26.0	10.0	58.0				
Max Q Clear Time (g_c+1), s	13.5	9.3	5.0	2.0	4.4	18.9	2.6	4.9				
Green Ext Time (p_c), s	0.0	0.4	0.1	5.3	0.0	0.6	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay												18.3
HCM 6th LOS												B

HCM 6th Signalized Intersection Summary

13: N Montgomery Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	543	148	34	304	1	11	0	11	0	4	1
Future Volume (veh/h)	3	543	148	34	304	1	11	0	11	0	4	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.96		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	3	603	164	38	338	1	12	0	12	0	4	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	915	982	267	696	1360	4	67	6	28	0	51	13
Arrive On Green	0.01	1.00	1.00	0.04	0.85	0.85	0.04	0.00	0.04	0.00	0.04	0.04
Sat Flow, veh/h	1509	1193	325	1521	1592	5	535	152	687	0	1235	309
Grp Volume(v), veh/h	3	0	767	38	0	339	24	0	0	0	0	5
Grp Sat Flow(s),veh/h/ln	1509	0	1518	1521	0	1597	1374	0	0	0	0	1543
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	4.7	1.0	0.0	0.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	4.7	2.0	0.0	0.0	0.0	0.0	0.4
Prop In Lane	1.00		0.21	1.00		0.00	0.50		0.50	0.00		0.20
Lane Grp Cap(c), veh/h	915	0	1249	696	0	1364	101	0	0	0	0	63
V/C Ratio(X)	0.00	0.00	0.61	0.05	0.00	0.25	0.24	0.00	0.00	0.00	0.00	0.08
Avail Cap(c_a), veh/h	1034	0	1249	768	0	1364	361	0	0	0	0	360
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.00	0.54	0.94	0.00	0.94	0.99	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.8	0.0	0.0	1.0	0.0	1.6	56.1	0.0	0.0	0.0	0.0	55.4
Incr Delay (d2), s/veh	0.0	0.0	1.2	0.0	0.0	0.4	0.9	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.0	0.8	0.1	0.0	2.0	1.3	0.0	0.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.8	0.0	1.2	1.0	0.0	2.0	57.0	0.0	0.0	0.0	0.0	55.8
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		770			377			24				5
Approach Delay, s/veh		1.2			1.9			57.0				55.8
Approach LOS		A			A			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.9	8.3	102.8		8.9	4.6	106.5				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		28.0	10.0	70.0		28.0	10.0	70.0				
Max Q Clear Time (g_c+I1), s		4.0	2.4	2.0		2.4	2.0	6.7				
Green Ext Time (p_c), s		0.1	0.0	6.2		0.0	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay				2.8								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

14: Naval Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	377	153	145	312	9	71	49	46	29	88	7
Future Volume (veh/h)	107	377	153	145	312	9	71	49	46	29	88	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1572	1572	1572	1610	1610	1610
Adj Flow Rate, veh/h	113	397	161	153	328	9	75	52	48	31	93	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	3	3	3	0	0	0
Cap, veh/h	555	467	190	349	702	19	265	90	83	230	146	11
Arrive On Green	0.07	0.44	0.44	0.09	0.45	0.45	0.06	0.12	0.12	0.04	0.10	0.10
Sat Flow, veh/h	1509	1064	431	1521	1546	42	1497	749	692	1533	1477	111
Grp Volume(v), veh/h	113	0	558	153	0	337	75	0	100	31	0	100
Grp Sat Flow(s),veh/h/ln	1509	0	1495	1521	0	1589	1497	0	1441	1533	0	1589
Q Serve(g_s), s	2.3	0.0	19.1	3.0	0.0	8.4	0.0	0.0	3.8	0.0	0.0	3.5
Cycle Q Clear(g_c), s	2.3	0.0	19.1	3.0	0.0	8.4	0.0	0.0	3.8	0.0	0.0	3.5
Prop In Lane	1.00		0.29	1.00		0.03	1.00		0.48	1.00		0.07
Lane Grp Cap(c), veh/h	555	0	657	349	0	721	265	0	172	230	0	157
V/C Ratio(X)	0.20	0.00	0.85	0.44	0.00	0.47	0.28	0.00	0.58	0.13	0.00	0.64
Avail Cap(c_a), veh/h	853	0	925	760	0	1122	840	0	641	583	0	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	0.0	14.4	11.0	0.0	10.9	24.6	0.0	23.9	25.2	0.0	24.9
Incr Delay (d2), s/veh	0.2	0.0	5.9	1.0	0.0	0.6	0.7	0.0	3.7	0.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.0	10.9	1.7	0.0	4.9	1.8	0.0	2.5	0.7	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	20.2	12.1	0.0	11.4	25.3	0.0	27.6	25.6	0.0	30.0
LnGrp LOS	A	A	C	B	A	B	C	A	C	C	A	C
Approach Vol, veh/h		671			490			175			131	
Approach Delay, s/veh		18.2			11.6			26.6			28.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	11.4	9.5	29.7	8.0	10.2	8.7	30.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	25.5	20.5	35.5	25.5	15.5	15.5	40.5				
Max Q Clear Time (g_c+I), s	12.0	5.8	5.0	21.1	2.0	5.5	4.3	10.4				
Green Ext Time (p_c), s	0.0	0.6	0.4	4.0	0.2	0.3	0.2	2.8				
Intersection Summary												
HCM 6th Ctrl Delay				18.0								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

16: Veneta Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	366	45	12	338	4	11	5	12	2	7	10
Future Volume (veh/h)	6	366	45	12	338	4	11	5	12	2	7	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	0.94		0.96	0.94		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	6	389	48	13	360	4	12	5	13	2	7	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	0	0	0
Cap, veh/h	641	828	683	604	817	9	232	72	96	151	88	121
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1017	1585	1308	951	1564	17	338	454	606	70	555	764
Grp Volume(v), veh/h	6	389	48	13	0	364	30	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln1017	1585	1308	951	0	1582	1398	0	0	1388	0	0	0
Q Serve(g_s), s	0.1	4.4	0.5	0.2	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	4.4	0.5	4.6	0.0	4.0	0.5	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.40		0.43	0.10		0.55
Lane Grp Cap(c), veh/h	641	828	683	604	0	826	401	0	0	361	0	0
V/C Ratio(X)	0.01	0.47	0.07	0.02	0.00	0.44	0.07	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	2108	3113	2570	1976	0	3107	1171	0	0	1141	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.5	4.3	3.3	5.7	0.0	4.2	10.2	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.2	0.1	0.0	1.3	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	1.6	0.1	0.1	0.0	1.5	0.3	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	5.8	3.5	5.8	0.0	5.5	10.5	0.0	0.0	10.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		443			377			30			20	
Approach Delay, s/veh		5.5			5.5			10.5			10.4	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.3		9.0		19.3		9.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		20.5		55.5		20.5				
Max Q Clear Time (g_c+I1), s		6.4		2.3		6.6		2.5				
Green Ext Time (p_c), s		8.3		0.1		7.2		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.8								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

17: Warren Ave (SR 303) & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	212	22	183	155	22	40	503	23	89	637	134
Future Volume (veh/h)	86	212	22	183	155	22	40	503	23	89	637	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	91	226	23	195	165	23	43	535	24	95	678	143
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	290	264	27	218	312	262	472	1528	68	492	1301	274
Arrive On Green	0.07	0.19	0.19	0.08	0.20	0.20	0.04	0.52	0.52	0.10	1.00	1.00
Sat Flow, veh/h	1509	1413	144	1509	1585	1333	1509	2935	131	1497	2444	515
Grp Volume(v), veh/h	91	0	249	195	165	23	43	274	285	95	414	407
Grp Sat Flow(s),veh/h/ln	1509	0	1556	1509	1585	1333	1509	1506	1561	1497	1494	1465
Q Serve(g_s), s	5.3	0.0	17.0	8.5	10.3	1.6	1.4	11.7	11.8	3.2	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	17.0	8.5	10.3	1.6	1.4	11.7	11.8	3.2	0.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.08	1.00		0.35
Lane Grp Cap(c), veh/h	290	0	291	218	312	262	472	784	813	492	795	780
V/C Ratio(X)	0.31	0.00	0.86	0.89	0.53	0.09	0.09	0.35	0.35	0.19	0.52	0.52
Avail Cap(c_a), veh/h	401	0	488	218	396	333	556	784	813	544	795	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	0.96	0.00	0.96	0.85	0.85	0.85	0.99	0.99	0.99	0.65	0.65	0.65
Uniform Delay (d), s/veh	33.0	0.0	43.3	39.8	39.6	36.1	10.9	15.4	15.5	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	8.6	30.1	1.2	0.1	0.1	1.2	1.2	0.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	11.6	6.6	7.2	0.9	0.9	7.6	7.8	1.8	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	51.9	70.0	40.8	36.2	11.0	16.7	16.6	11.0	1.6	1.6
LnGrp LOS	C	A	D	E	D	D	B	B	B	B	A	A
Approach Vol, veh/h		340			383			602			916	
Approach Delay, s/veh		47.0			55.4			16.2			2.6	
Approach LOS		D			E			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	61.8	13.0	25.1	8.9	63.1	11.9	26.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	39.5	8.5	34.5	10.5	38.5	15.5	27.5				
Max Q Clear Time (g_c+1/2), s	15.2	13.8	10.5	19.0	3.4	2.0	7.3	12.3				
Green Ext Time (p_c), s	0.1	4.3	0.0	1.5	0.0	7.7	0.1	0.8				
Intersection Summary												
HCM 6th Ctrl Delay											22.0	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary

18: Park Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (veh/h)	29	154	167	26	257	11	16	43	35	30	115	84
Future Volume (veh/h)	29	154	167	26	257	11	16	43	35	30	115	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	0.98		1.00	0.97		0.95	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	33	173	188	29	289	12	18	48	39	34	129	94
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	1	1	1
Cap, veh/h	162	537	476	136	537	21	162	288	194	152	299	193
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	112	1420	1258	62	1420	56	112	792	534	95	823	530
Grp Volume(v), veh/h	206	0	188	330	0	0	105	0	0	257	0	0
Grp Sat Flow(s),veh/h/ln	1532	0	1258	1538	0	0	1438	0	0	1448	0	0
Q Serve(g_s), s	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	3.8	5.7	0.0	0.0	1.7	0.0	0.0	4.7	0.0	0.0
Prop In Lane	0.16		1.00	0.09		0.04	0.17		0.37	0.13		0.37
Lane Grp Cap(c), veh/h	699	0	476	694	0	0	644	0	0	643	0	0
V/C Ratio(X)	0.29	0.00	0.40	0.48	0.00	0.00	0.16	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1430	0	1100	1437	0	0	1355	0	0	1372	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.7	0.0	7.9	8.5	0.0	0.0	7.6	0.0	0.0	8.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.1	1.1	0.0	0.0	0.3	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	1.6	2.9	0.0	0.0	0.8	0.0	0.0	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	9.1	9.6	0.0	0.0	7.9	0.0	0.0	9.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		394		330			105			257		
Approach Delay, s/veh		8.6		9.6			7.9			9.4		
Approach LOS		A		A			A			A		
Timer - Assigned Phs		2		4			6			8		
Phs Duration (G+Y+Rc), s		17.2		17.7			17.2			17.7		
Change Period (Y+Rc), s		4.5		4.5			4.5			4.5		
Max Green Setting (Gmax), s		30.5		30.5			30.5			30.5		
Max Q Clear Time (g_c+I1), s		3.7		5.8			6.7			7.7		
Green Ext Time (p_c), s		1.1		4.1			3.1			3.9		
Intersection Summary												
HCM 6th Ctrl Delay				9.0								
HCM 6th LOS				A								

Intersection

Intersection Delay, s/veh 12.2

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	106	51	57	204	17	26	30	11	25	109	69
Future Vol, veh/h	38	106	51	57	204	17	26	30	11	25	109	69
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	4	4	4	2	2	2	5	5	5	3	3	3
Mvmt Flow	46	128	61	69	246	20	31	36	13	30	131	83
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	11	12.5	10.3	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	46%	0%	100%	0%	100%	0%	12%
Vol Thru, %	54%	0%	0%	68%	0%	92%	54%
Vol Right, %	0%	100%	0%	32%	0%	8%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	11	38	157	57	221	203
LT Vol	26	0	38	0	57	0	25
Through Vol	30	0	0	106	0	204	109
RT Vol	0	11	0	51	0	17	69
Lane Flow Rate	67	13	46	189	69	266	245
Geometry Grp	5	5	5	5	5	5	4b
Degree of Util (X)	0.129	0.022	0.084	0.309	0.123	0.434	0.414
Departure Headway (Hd)	6.865	5.917	6.615	5.877	6.433	5.872	6.097
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	603	541	611	557	612	589
Service Time	4.621	3.672	4.36	3.622	4.174	3.613	4.142
HCM Lane V/C Ratio	0.129	0.022	0.085	0.309	0.124	0.435	0.416
HCM Control Delay	10.6	8.8	10	11.2	10.1	13.1	13.4
HCM Lane LOS	B	A	A	B	B	B	B
HCM 95th-tile Q	0.4	0.1	0.3	1.3	0.4	2.2	2

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	27	33	239	328	193
Future Volume (veh/h)	38	27	33	239	328	193
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1560	1560	1409	1409	1560	1560
Adj Flow Rate, veh/h	43	31	38	272	373	219
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	16	16	4	4
Cap, veh/h	80	58	365	939	453	266
Arrive On Green	0.10	0.10	0.05	0.67	0.50	0.50
Sat Flow, veh/h	804	579	1342	1409	909	534
Grp Volume(v), veh/h	75	0	38	272	0	592
Grp Sat Flow(s),veh/h/ln	1402	0	1342	1409	0	1443
Q Serve(g_s), s	2.0	0.0	0.4	3.1	0.0	13.5
Cycle Q Clear(g_c), s	2.0	0.0	0.4	3.1	0.0	13.5
Prop In Lane	0.57	0.41	1.00			0.37
Lane Grp Cap(c), veh/h	140	0	365	939	0	718
V/C Ratio(X)	0.54	0.00	0.10	0.29	0.00	0.82
Avail Cap(c_a), veh/h	927	0	835	2029	0	1329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	6.4	2.7	0.0	8.2
Incr Delay (d2), s/veh	2.4	0.0	0.1	0.1	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.0	0.1	0.6	0.0	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	0.0	6.5	2.8	0.0	10.1
LnGrp LOS	B	A	A	A	A	B
Approach Vol, veh/h	75			310	592	
Approach Delay, s/veh	18.8			3.2	10.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		30.2		8.4	6.5	23.7
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		55.5		25.5	15.5	35.5
Max Q Clear Time (g_c+I1), s		5.1		4.0	2.4	15.5
Green Ext Time (p_c), s		1.5		0.1	0.0	3.7

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑	↗		↔			↖	↗
Traffic Volume (veh/h)	537	295	0	0	228	46	0	1	1	82	5	517
Future Volume (veh/h)	537	295	0	0	228	46	0	1	1	82	5	517
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1522	1522	1610	1610	1610	1547	1547	1547
Adj Flow Rate, veh/h	559	307	0	0	238	48	0	1	1	85	5	539
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	7	7	0	0	0	5	5	5
Cap, veh/h	740	738	0	0	225	187	0	13	13	285	17	910
Arrive On Green	0.49	0.49	0.00	0.00	0.15	0.15	0.00	0.02	0.02	0.20	0.20	0.20
Sat Flow, veh/h	1509	1585	0	0	1522	1264	0	732	732	1395	82	1308
Grp Volume(v), veh/h	559	307	0	0	238	48	0	0	2	90	0	539
Grp Sat Flow(s),veh/h/ln	1509	1506	0	0	1522	1264	0	0	1463	1477	0	1308
Q Serve(g_s), s	42.6	18.6	0.0	0.0	21.0	4.8	0.0	0.0	0.2	7.3	0.0	29.0
Cycle Q Clear(g_c), s	42.6	18.6	0.0	0.0	21.0	4.8	0.0	0.0	0.2	7.3	0.0	29.0
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.50	0.94		1.00
Lane Grp Cap(c), veh/h	740	738	0	0	225	187	0	0	25	302	0	910
V/C Ratio(X)	0.76	0.42	0.00	0.00	1.06	0.26	0.00	0.00	0.08	0.30	0.00	0.59
Avail Cap(c_a), veh/h	740	738	0	0	225	187	0	0	330	302	0	910
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.74	0.00	0.74
Uniform Delay (d), s/veh	29.3	23.2	0.0	0.0	60.5	53.6	0.0	0.0	68.7	47.9	0.0	11.1
Incr Delay (d2), s/veh	5.3	0.8	0.0	0.0	75.9	3.3	0.0	0.0	1.9	1.1	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(95%),veh/ln	23.3	11.2	0.0	0.0	19.3	3.1	0.0	0.0	0.2	5.1	0.0	26.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	24.0	0.0	0.0	136.4	56.9	0.0	0.0	70.6	49.0	0.0	12.5
LnGrp LOS	C	C	A	A	F	E	A	A	E	D	A	B
Approach Vol, veh/h		866			286			2			629	
Approach Delay, s/veh		30.9			123.1			70.6			17.7	
Approach LOS		C			F			E			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		7.4		74.6		34.0		26.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		32.0		40.0		29.0		21.0				
Max Q Clear Time (g_c+I1), s		2.2		44.6		31.0		23.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					41.1							
HCM 6th LOS					D							

HCM 6th Signalized Intersection Summary
 22: Warren Ave (SR 303) & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↘			↖↗		↖	↖↗		↖	↖↗	↖
Traffic Volume (veh/h)	497	258	25	0	248	42	23	569	14	84	771	472
Future Volume (veh/h)	497	258	25	0	248	42	23	569	14	84	771	472
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1522	1522	1522	0	1560	1560	1572	1572	1572	1572	1572	1572
Adj Flow Rate, veh/h	558	290	28	0	279	47	26	639	16	94	866	530
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	0	4	4	3	3	3	3	3	3
Cap, veh/h	499	524	51	0	373	62	236	1207	30	302	1277	798
Arrive On Green	0.30	0.64	0.64	0.00	0.15	0.15	0.01	0.13	0.13	0.10	0.86	0.86
Sat Flow, veh/h	2812	1366	132	0	2617	422	1497	2978	75	1497	2987	1313
Grp Volume(v), veh/h	558	0	318	0	161	165	26	320	335	94	866	530
Grp Sat Flow(s),veh/h/ln1406	0	1498	0	1482	1480	1497	1494	1559	1497	1494	1313	
Q Serve(g_s), s	19.5	0.0	13.0	0.0	11.5	11.8	1.1	22.0	22.0	4.0	11.0	23.0
Cycle Q Clear(g_c), s	19.5	0.0	13.0	0.0	11.5	11.8	1.1	22.0	22.0	4.0	11.0	23.0
Prop In Lane	1.00		0.09	0.00		0.29	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	499	0	574	0	218	218	236	605	632	302	1277	798
V/C Ratio(X)	1.12	0.00	0.55	0.00	0.74	0.76	0.11	0.53	0.53	0.31	0.68	0.66
Avail Cap(c_a), veh/h	499	0	742	0	397	397	293	605	632	339	1277	798
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.95	0.95	0.92	0.92	0.92	0.45	0.45	0.45
Uniform Delay (d), s/veh	38.7	0.0	14.5	0.0	44.9	45.0	18.6	37.9	37.9	18.7	5.4	3.3
Incr Delay (d2), s/veh	77.2	0.0	0.8	0.0	4.6	5.1	0.2	3.0	2.9	0.3	1.3	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(95%),veh/ln7.7	0.0	0.0	6.3	0.0	7.9	8.0	0.7	14.1	14.6	2.4	3.5	23.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.9	0.0	15.4	0.0	49.5	50.1	18.8	40.9	40.8	19.0	6.7	5.3
LnGrp LOS	F	A	B	A	D	D	B	D	D	B	A	A
Approach Vol, veh/h		876			326			681			1490	
Approach Delay, s/veh		79.4			49.8			40.0			7.0	
Approach LOS		E			D			D			A	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.3	50.1		48.7	8.8	52.5	26.0	22.7				
Change Period (Y+Rc), s	5.5	5.5		6.5	5.5	5.5	6.5	*6.5				
Max Green Setting (Gmax), s	5	29.5		54.5	7.5	30.5	19.5	*30				
Max Q Clear Time (g_c+1/3), s	10	24.0		15.0	3.1	25.0	21.5	13.8				
Green Ext Time (p_c), s	0.1	2.2		2.1	0.0	3.9	0.0	1.7				

Intersection Summary

HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Volume (veh/h)	170	20	22	18	21	1	0	1147	1	0	1237	244
Future Volume (veh/h)	170	20	22	18	21	1	0	1147	1	0	1237	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1535	1535	1535	1610	1610	1610	0	1547	1547	0	1572	1572
Adj Flow Rate, veh/h	179	21	23	19	22	1	0	1207	1	0	1302	257
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	0	5	5	0	3	3
Cap, veh/h	264	24	26	158	162	7	0	2196	2	0	1815	354
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.00	1.00	1.00	0.00	0.24	0.24
Sat Flow, veh/h	1083	127	139	583	856	35	0	3091	2	0	2570	486
Grp Volume(v), veh/h	223	0	0	42	0	0	0	589	619	0	774	785
Grp Sat Flow(s),veh/h/ln	1349	0	0	1474	0	0	0	1470	1547	0	1494	1483
Q Serve(g_s), s	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.2	53.6
Cycle Q Clear(g_c), s	17.6	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	52.2	53.6
Prop In Lane	0.80		0.10	0.45		0.02	0.00		0.00	0.00		0.33
Lane Grp Cap(c), veh/h	315	0	0	327	0	0	0	1071	1127	0	1088	1081
V/C Ratio(X)	0.71	0.00	0.00	0.13	0.00	0.00	0.00	0.55	0.55	0.00	0.71	0.73
Avail Cap(c_a), veh/h	456	0	0	485	0	0	0	1071	1127	0	1088	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.39	0.39	0.00	0.46	0.46
Uniform Delay (d), s/veh	43.2	0.0	0.0	37.1	0.0	0.0	0.0	0.0	0.0	0.0	31.2	31.7
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.2	0.0	0.0	0.0	0.8	0.8	0.0	1.8	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(95%),veh/ft	0.3	0.0	0.0	1.8	0.0	0.0	0.0	0.4	0.4	0.0	26.5	27.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	0.0	37.3	0.0	0.0	0.0	0.8	0.8	0.0	33.0	33.7
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	C	C
Approach Vol, veh/h		223			42			1208			1559	
Approach Delay, s/veh		46.7			37.3			0.8			33.3	
Approach LOS		D			D			A			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		84.7		25.3		84.7		25.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		68.5		32.5		68.5		32.5				
Max Q Clear Time (g_c+I1), s		2.0		19.6		55.6		4.4				
Green Ext Time (p_c), s		18.4		1.2		11.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				21.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↖	↑↑	↑↑	↖
Traffic Volume (veh/h)	15	11	107	1234	1484	180
Future Volume (veh/h)	15	11	107	1234	1484	180
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1422	1422	1547	1547	1572	1572
Adj Flow Rate, veh/h	14	15	122	1402	1686	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	15	15	5	5	3	3
Cap, veh/h	43	39	144	2605	2232	
Arrive On Green	0.03	0.03	0.13	1.00	0.75	0.00
Sat Flow, veh/h	1354	1205	1474	3017	3066	1332
Grp Volume(v), veh/h	14	15	122	1402	1686	0
Grp Sat Flow(s),veh/h/ln	1354	1205	1474	1470	1494	1332
Q Serve(g_s), s	1.1	1.3	8.9	0.0	36.0	0.0
Cycle Q Clear(g_c), s	1.1	1.3	8.9	0.0	36.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	144	2605	2232	
V/C Ratio(X)	0.32	0.39	0.85	0.54	0.76	
Avail Cap(c_a), veh/h	326	290	208	2605	2232	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.73	0.73	1.00	0.00
Uniform Delay (d), s/veh	52.1	52.2	47.0	0.0	8.1	0.0
Incr Delay (d2), s/veh	5.1	7.5	15.8	0.6	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.8	0.9	6.5	0.4	15.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.1	59.7	62.8	0.6	10.5	0.0
LnGrp LOS	E	E	E	A	B	
Approach Vol, veh/h	29			1524	1686	
Approach Delay, s/veh	58.5			5.6	10.5	
Approach LOS	E			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.0	15.3	86.7		102.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		26.5	15.5	54.5		74.5
Max Q Clear Time (g_c+I1), s		3.3	10.9	38.0		2.0
Green Ext Time (p_c), s		0.1	0.1	13.4		26.8

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	96	186	156	27	106	75	890	100	169	1093	19
Future Volume (veh/h)	22	96	186	156	27	106	75	890	100	169	1093	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1535	1535	1535	1572	1572	1572
Adj Flow Rate, veh/h	24	104	59	170	29	42	82	967	45	184	1188	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	3	3	3
Cap, veh/h	232	141	119	254	254	213	385	1089	481	420	1295	22
Arrive On Green	0.04	0.09	0.09	0.11	0.16	0.16	0.22	0.37	0.37	0.37	0.57	0.57
Sat Flow, veh/h	1509	1585	1339	1509	1585	1331	1462	2916	1288	1497	3006	51
Grp Volume(v), veh/h	24	104	59	170	29	42	82	967	45	184	590	618
Grp Sat Flow(s),veh/h/ln	1509	1585	1339	1509	1585	1331	1462	1458	1288	1497	1494	1563
Q Serve(g_s), s	2.0	9.0	4.0	13.9	2.2	2.2	0.4	43.5	2.2	12.9	49.8	49.8
Cycle Q Clear(g_c), s	2.0	9.0	4.0	13.9	2.2	2.2	0.4	43.5	2.2	12.9	49.8	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	232	141	119	254	254	213	385	1089	481	420	643	673
V/C Ratio(X)	0.10	0.74	0.50	0.67	0.11	0.20	0.21	0.89	0.09	0.44	0.92	0.92
Avail Cap(c_a), veh/h	351	249	210	286	272	228	385	1312	580	420	768	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71
Uniform Delay (d), s/veh	53.6	62.2	27.8	48.8	50.3	17.2	42.1	41.1	14.1	35.6	27.7	27.7
Incr Delay (d2), s/veh	0.2	7.4	3.2	5.0	0.2	0.4	0.3	10.8	0.4	0.5	15.5	15.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	7.1	3.8	9.6	1.6	2.4	4.1	24.0	1.9	7.5	24.6	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	69.6	31.0	53.8	50.5	17.6	42.4	51.9	14.5	36.2	43.2	42.7
LnGrp LOS	D	E	C	D	D	B	D	D	B	D	D	D
Approach Vol, veh/h		187			241			1094			1392	
Approach Delay, s/veh		55.4			47.1			49.6			42.0	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.2	57.3	21.0	17.4	36.2	65.3	11.0	27.5				
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	63.0	63.0	19.0	22.0	7.0	72.0	17.0	24.0				
Max Q Clear Time (g_c+1/4), s	14.9	45.5	15.9	11.0	2.4	51.8	4.0	4.2				
Green Ext Time (p_c), s	0.1	6.8	0.1	0.5	0.1	8.5	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	46.2
HCM 6th LOS	D

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	66	121	86	52	148	55	891	87	55	1052	24
Future Volume (veh/h)	71	66	121	86	52	148	55	891	87	55	1052	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1547	1547	1547	1585	1585	1585	1560	1560	1560	1572	1572	1572
Adj Flow Rate, veh/h	78	73	133	95	57	163	60	979	96	60	1156	26
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	5	5	2	2	2	4	4	4	3	3	3
Cap, veh/h	93	214	180	97	221	186	329	1824	812	430	1839	41
Arrive On Green	0.06	0.14	0.14	0.06	0.14	0.14	0.08	1.00	1.00	0.05	0.82	0.82
Sat Flow, veh/h	1474	1547	1300	1509	1585	1332	1485	2964	1320	1497	2987	67
Grp Volume(v), veh/h	78	73	133	95	57	163	60	979	96	60	578	604
Grp Sat Flow(s),veh/h/ln	1474	1547	1300	1509	1585	1332	1485	1482	1320	1497	1494	1560
Q Serve(g_s), s	7.3	6.0	13.7	8.8	4.5	16.8	2.0	0.0	0.0	2.0	20.2	20.2
Cycle Q Clear(g_c), s	7.3	6.0	13.7	8.8	4.5	16.8	2.0	0.0	0.0	2.0	20.2	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	93	214	180	97	221	186	329	1824	812	430	920	960
V/C Ratio(X)	0.83	0.34	0.74	0.98	0.26	0.88	0.18	0.54	0.12	0.14	0.63	0.63
Avail Cap(c_a), veh/h	95	365	306	97	374	314	367	1824	812	468	920	960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.65	0.65	0.84	0.84	0.84
Uniform Delay (d), s/veh	64.8	54.5	57.9	65.4	53.8	59.1	10.0	0.0	0.0	8.6	6.7	6.7
Incr Delay (d2), s/veh	44.1	0.9	5.8	84.3	0.6	13.8	0.2	0.7	0.2	0.1	2.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.1	4.4	8.5	9.6	3.3	10.6	1.2	0.3	0.1	1.2	8.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.0	55.5	63.7	149.7	54.4	72.8	10.1	0.7	0.2	8.7	9.4	9.3
LnGrp LOS	F	E	E	F	D	E	B	A	A	A	A	A
Approach Vol, veh/h		284			315			1135			1242	
Approach Delay, s/veh		74.0			92.7			1.2			9.4	
Approach LOS		E			F			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.4	91.2	14.0	24.4	10.4	91.2	13.9	24.5				
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	9.0	69.0	9.0	33.0	9.0	69.0	9.0	33.0				
Max Q Clear Time (g_c+14), s	14.0	2.0	10.8	15.7	4.0	22.2	9.3	18.8				
Green Ext Time (p_c), s	0.0	9.8	0.0	0.8	0.0	10.7	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay		21.2										
HCM 6th LOS			C									

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↘		↗	↕		↗	↕	↘
Traffic Volume (veh/h)	0	0	0	13	0	12	0	1017	20	11	1098	0
Future Volume (veh/h)	0	0	0	13	0	12	0	1017	20	11	1098	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.97		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	1610	1572	1572	1572	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	0	0	0	13	0	12	0	1048	21	11	1132	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	3	3	1	1	1	1	1	1
Cap, veh/h	0	54	0	100	0	44	470	2569	51	523	2716	0
Arrive On Green	0.00	0.00	0.00	0.03	0.00	0.03	0.00	1.00	1.00	0.01	0.89	0.00
Sat Flow, veh/h	0	1610	0	1457	0	1314	1521	3043	61	1521	3115	0
Grp Volume(v), veh/h	0	0	0	13	0	12	0	523	546	11	1132	0
Grp Sat Flow(s),veh/h/ln	0	1610	0	1457	0	1314	1521	1518	1586	1521	1518	0
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	1.2	0.0	0.0	0.0	0.1	8.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.2	0.0	1.2	0.0	0.0	0.0	0.1	8.7	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	0	54	0	100	0	44	470	1281	1340	523	2716	0
V/C Ratio(X)	0.00	0.00	0.00	0.13	0.00	0.27	0.00	0.41	0.41	0.02	0.42	0.00
Avail Cap(c_a), veh/h	0	288	0	312	0	235	567	1281	1340	598	2716	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.87	0.87	0.72	0.72	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	66.0	0.0	66.0	0.0	0.0	0.0	1.1	1.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	4.6	0.0	0.8	0.8	0.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	0.0	0.0	0.9	0.0	0.9	0.0	0.5	0.5	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	66.8	0.0	70.6	0.0	0.8	0.8	1.2	1.6	0.0
LnGrp LOS	A	A	A	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		0		25		1069		1143				
Approach Delay, s/veh		0.0		68.6		0.8		1.6				
Approach LOS				E		A		A				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s7.1	123.2			9.7	0.0	130.3		9.7				
Change Period (Y+Rc), s 5.0	5.0			5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s 91.0	91.0			25.0	9.0	91.0		25.0				
Max Q Clear Time (g_c+1), s 2.0	2.0			0.0	0.0	10.7		3.2				
Green Ext Time (p_c), s 0.0	0.0	15.1		0.0	0.0	18.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				2.0								
HCM 6th LOS				A								

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	39	128	33	53	159	66	866	58	102	934	54
Future Volume (veh/h)	112	39	128	33	53	159	66	866	58	102	934	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1560	1560	1560	1560	1560	1560
Adj Flow Rate, veh/h	120	42	138	35	57	171	71	921	62	110	1004	58
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	4	4	4
Cap, veh/h	180	230	195	144	195	165	464	1494	101	189	1044	464
Arrive On Green	0.06	0.15	0.15	0.04	0.12	0.12	0.25	0.53	0.53	0.15	0.70	0.70
Sat Flow, veh/h	1509	1585	1340	1509	1585	1343	1485	2818	190	1485	2964	1318
Grp Volume(v), veh/h	120	42	138	35	57	171	71	484	499	110	1004	58
Grp Sat Flow(s),veh/h/ln	1509	1585	1340	1509	1585	1343	1485	1482	1526	1485	1482	1318
Q Serve(g_s), s	1.7	2.2	5.4	2.0	3.1	9.3	0.0	21.7	21.7	5.1	29.5	1.4
Cycle Q Clear(g_c), s	1.7	2.2	5.4	2.0	3.1	9.3	0.0	21.7	21.7	5.1	29.5	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	180	230	195	144	195	165	464	786	809	189	1044	464
V/C Ratio(X)	0.67	0.18	0.71	0.24	0.29	1.04	0.15	0.62	0.62	0.58	0.96	0.12
Avail Cap(c_a), veh/h	231	334	282	198	300	254	464	786	809	248	1092	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	0.83	0.83	0.83	1.00	1.00	1.00	0.91	0.91	0.91	0.66	0.66	0.66
Uniform Delay (d), s/veh	42.0	35.7	13.0	40.3	37.9	26.2	26.3	15.6	15.6	24.3	13.4	9.3
Incr Delay (d2), s/veh	3.1	0.2	2.9	0.6	0.6	56.9	0.1	3.3	3.2	1.4	15.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	5.1	1.6	5.5	1.4	2.2	9.6	2.2	11.9	12.1	3.1	9.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	35.9	15.9	40.9	38.5	83.2	26.4	18.9	18.8	25.7	28.6	9.7
LnGrp LOS	D	D	B	D	D	F	C	B	B	C	C	A
Approach Vol, veh/h		300			263			1054			1172	
Approach Delay, s/veh		30.4			67.9			19.3			27.4	
Approach LOS		C			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	38.5	10.7	16.7	12.2	55.4	8.6	18.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	35.0	35.0	9.0	18.0	11.0	37.0	7.0	20.0				
Max Q Clear Time (g_c+I), s	31.5	31.5	3.7	11.3	7.1	23.7	4.0	7.4				
Green Ext Time (p_c), s	0.1	2.0	0.1	0.4	0.1	4.5	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay											28.5	
HCM 6th LOS											C	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔↔		↔	↑	↔	↔	↔	↔
Traffic Volume (veh/h)	8	600	18	152	683	22	13	32	73	34	56	15
Future Volume (veh/h)	8	600	18	152	683	22	13	32	73	34	56	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	8	625	19	158	711	23	14	33	76	35	58	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	2	2	2
Cap, veh/h	41	1897	57	582	2214	72	29	277	226	207	135	37
Arrive On Green	0.65	0.65	0.65	0.11	1.00	1.00	0.02	0.17	0.17	0.11	0.11	0.11
Sat Flow, veh/h	12	2920	88	1509	2974	96	1521	1597	1301	1241	1184	327
Grp Volume(v), veh/h	342	0	310	158	360	374	14	33	76	35	0	74
Grp Sat Flow(s),veh/h/ln	1583	0	1438	1509	1506	1564	1521	1597	1301	1241	0	1510
Q Serve(g_s), s	0.0	0.0	10.6	3.8	0.0	0.0	1.0	1.9	5.6	2.8	0.0	5.0
Cycle Q Clear(g_c), s	10.5	0.0	10.6	3.8	0.0	0.0	1.0	1.9	5.6	2.8	0.0	5.0
Prop In Lane	0.02		0.06	1.00		0.06	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	1062	0	934	582	1121	1165	29	277	226	207	0	172
V/C Ratio(X)	0.32	0.00	0.33	0.27	0.32	0.32	0.48	0.12	0.34	0.17	0.00	0.43
Avail Cap(c_a), veh/h	1062	0	934	630	1121	1165	118	574	467	364	0	364
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.94	0.94	0.94	0.97	0.97	0.97	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.6	0.0	8.6	5.4	0.0	0.0	53.4	38.4	39.9	44.5	0.0	45.4
Incr Delay (d2), s/veh	0.8	0.0	1.0	0.2	0.7	0.7	11.7	0.2	0.8	0.4	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	6.5	0.0	6.0	1.7	0.4	0.4	0.9	1.4	3.4	1.6	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	0.0	9.6	5.6	0.7	0.7	65.1	38.5	40.7	44.8	0.0	47.1
LnGrp LOS	A	A	A	A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		652			892			123			109	
Approach Delay, s/veh		9.5			1.6			42.9			46.4	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		23.6		86.4	6.6	17.0	10.5	76.0				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		39.5		61.5	8.5	26.5	9.5	47.5				
Max Q Clear Time (g_c+I1), s		7.6		2.0	3.0	7.0	5.8	12.6				
Green Ext Time (p_c), s		0.4		5.4	0.0	0.4	0.1	4.5				
Intersection Summary												
HCM 6th Ctrl Delay					10.1							
HCM 6th LOS					B							

HCM 6th Signalized Intersection Summary

31: Naval Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗			↕	
Traffic Volume (veh/h)	5	663	10	30	744	9	11	21	131	15	40	82
Future Volume (veh/h)	5	663	10	30	744	9	11	21	131	15	40	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1547	1547	1547	1560	1560	1560	1572	1572	1572	1547	1547	1547
Adj Flow Rate, veh/h	5	698	11	32	783	9	12	22	138	16	42	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	4	4	4	3	3	3	5	5	5
Cap, veh/h	11	1943	31	51	2047	24	25	35	220	47	61	106
Arrive On Green	0.00	0.22	0.22	0.07	1.00	1.00	0.02	0.19	0.19	0.13	0.13	0.13
Sat Flow, veh/h	1474	2962	47	1485	3000	34	1497	187	1172	85	467	818
Grp Volume(v), veh/h	5	346	363	32	387	405	12	0	160	144	0	0
Grp Sat Flow(s),veh/h/ln	1474	1470	1539	1485	1482	1553	1497	0	1359	1371	0	0
Q Serve(g_s), s	0.4	22.0	22.0	2.3	0.0	0.0	0.9	0.0	11.9	5.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	22.0	22.0	2.3	0.0	0.0	0.9	0.0	11.9	11.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	1.00		0.86	0.11		0.60
Lane Grp Cap(c), veh/h	11	964	1009	51	1011	1059	25	0	255	214	0	0
V/C Ratio(X)	0.44	0.36	0.36	0.63	0.38	0.38	0.48	0.00	0.63	0.67	0.00	0.00
Avail Cap(c_a), veh/h	141	964	1009	115	1011	1059	116	0	513	389	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.95	0.95	0.86	0.86	0.86	0.97	0.00	0.97	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.6	23.5	23.5	50.6	0.0	0.0	53.6	0.0	41.2	46.5	0.0	0.0
Incr Delay (d2), s/veh	23.3	1.0	0.9	10.7	0.9	0.9	13.1	0.0	2.5	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.4	13.7	14.2	1.8	0.5	0.5	0.8	0.0	7.5	7.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.9	24.4	24.4	61.3	0.9	0.9	66.7	0.0	43.6	50.1	0.0	0.0
LnGrp LOS	E	C	C	E	A	A	E	A	D	D	A	A
Approach Vol, veh/h		714			824			172			144	
Approach Delay, s/veh		24.8			3.3			45.3			50.1	
Approach LOS		C			A			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	8.2	76.7	6.3	18.8	5.4	79.5	25.1					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	5	46.5	8.5	28.5	10.5	44.5	41.5					
Max Q Clear Time (g_c+1/3), s	14.3	24.0	2.9	13.2	2.4	2.0	13.9					
Green Ext Time (p_c), s	0.0	4.6	0.0	0.7	0.0	5.9	1.1					
Intersection Summary												
HCM 6th Ctrl Delay				19.1								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

32: High Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	84	756	1	6	718	8	23	34	11	39	18	56
Future Volume (veh/h)	84	756	1	6	718	8	23	34	11	39	18	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1522	1522	1522	1560	1560	1560	1610	1610	1610	1572	1572	1572
Adj Flow Rate, veh/h	100	900	1	7	855	10	27	40	13	46	21	67
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	7	7	7	4	4	4	0	0	0	3	3	3
Cap, veh/h	361	1929	2	452	1828	21	47	113	37	62	35	113
Arrive On Green	0.10	1.00	1.00	0.00	0.20	0.20	0.03	0.10	0.10	0.04	0.11	0.11
Sat Flow, veh/h	1450	2964	3	1485	3000	35	1533	1154	375	1497	326	1041
Grp Volume(v), veh/h	100	439	462	7	422	443	27	0	53	46	0	88
Grp Sat Flow(s),veh/h/ln	1450	1446	1521	1485	1482	1553	1533	0	1528	1497	0	1368
Q Serve(g_s), s	2.7	0.0	0.0	0.2	27.6	27.6	1.9	0.0	3.6	3.3	0.0	6.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.2	27.6	27.6	1.9	0.0	3.6	3.3	0.0	6.7
Prop In Lane	1.00		0.00	1.00		0.02	1.00		0.25	1.00		0.76
Lane Grp Cap(c), veh/h	361	941	990	452	903	946	47	0	149	62	0	148
V/C Ratio(X)	0.28	0.47	0.47	0.02	0.47	0.47	0.57	0.00	0.35	0.75	0.00	0.59
Avail Cap(c_a), veh/h	397	941	990	537	903	946	105	0	368	102	0	329
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	0.0	8.1	28.2	28.2	52.6	0.0	46.4	52.2	0.0	46.7
Incr Delay (d2), s/veh	0.4	1.6	1.5	0.0	1.7	1.7	10.6	0.0	1.4	16.2	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.7	0.7	0.1	16.9	17.6	1.6	0.0	2.6	2.8	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	1.6	1.5	8.1	30.0	29.9	63.2	0.0	47.8	68.4	0.0	50.5
LnGrp LOS	B	A	A	A	C	C	E	A	D	E	A	D
Approach Vol, veh/h		1001			872			80			134	
Approach Delay, s/veh		2.4			29.7			53.0			56.7	
Approach LOS		A			C			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	16.2	6.7	77.1	8.9	17.4	11.2	72.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5	26.5	7.5	46.5	7.5	26.5	8.5	45.5				
Max Q Clear Time (g_c+1/3), s	5	5.6	2.2	2.0	3.9	8.7	4.7	29.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	7.1	0.0	0.4	0.1	5.0				

Intersection Summary

HCM 6th Ctrl Delay		19.3										
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

33: Park Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	254	85	14	275	10	22	40	7	8	68	12
Future Volume (veh/h)	26	254	85	14	275	10	22	40	7	8	68	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.97	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1560	1560	1547	1547	1547	1547	1547	1547	1585	1585	1585
Adj Flow Rate, veh/h	30	295	99	16	320	12	26	47	8	9	79	14
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	5	5	5	5	5	5	2	2	2
Cap, veh/h	65	541	458	37	486	18	215	230	250	141	293	259
Arrive On Green	0.04	0.35	0.35	0.02	0.33	0.33	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1485	1560	1320	1474	1481	56	300	1178	1278	73	1497	1323
Grp Volume(v), veh/h	30	295	99	16	0	332	73	0	8	88	0	14
Grp Sat Flow(s),veh/h/ln	1485	1560	1320	1474	0	1537	1478	0	1278	1570	0	1323
Q Serve(g_s), s	0.6	4.8	1.7	0.3	0.0	5.8	0.0	0.0	0.2	0.0	0.0	0.3
Cycle Q Clear(g_c), s	0.6	4.8	1.7	0.3	0.0	5.8	1.2	0.0	0.2	1.5	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.04	0.36		1.00	0.10		1.00
Lane Grp Cap(c), veh/h	65	541	458	37	0	504	445	0	250	434	0	259
V/C Ratio(X)	0.46	0.55	0.22	0.44	0.00	0.66	0.16	0.00	0.03	0.20	0.00	0.05
Avail Cap(c_a), veh/h	976	1774	1501	968	0	1748	1105	0	839	1151	0	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	8.2	7.2	15.0	0.0	9.0	10.6	0.0	10.2	10.7	0.0	10.2
Incr Delay (d2), s/veh	4.9	0.9	0.2	7.9	0.0	1.5	0.2	0.0	0.1	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	2.0	0.6	0.3	0.0	2.6	0.6	0.0	0.1	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	9.1	7.4	22.9	0.0	10.5	10.8	0.0	10.2	10.9	0.0	10.3
LnGrp LOS	B	A	A	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h		424			348			81			102	
Approach Delay, s/veh		9.4			11.0			10.7			10.8	
Approach LOS		A			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.6	5.3	15.3		10.6	5.9	14.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	20.5	35.5		20.5	20.5	35.5				
Max Q Clear Time (g_c+I1), s		3.2	2.3	6.8		3.5	2.6	7.8				
Green Ext Time (p_c), s		0.3	0.0	2.2		0.4	0.0	2.1				
Intersection Summary												
HCM 6th Ctrl Delay											10.3	
HCM 6th LOS											B	

MOVEMENT SUMMARY

Site: 34 [Washington Ave & Manette Bridge (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

NA
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: Washington Ave (NB)															
8	T1	All MCs	104	9.0	104	9.0	0.370	3.6	LOS A	2.1	56.1	0.49	0.50	0.49	23.7
18	R2	All MCs	265	9.0	265	9.0	0.370	4.0	LOS A	2.1	56.1	0.49	0.50	0.49	25.4
Approach			369	9.0	369	9.0	0.370	3.9	LOS A	2.1	56.1	0.49	0.50	0.49	24.9
East: Manette Bridge (WB)															
1	L2	All MCs	485	3.0	485	3.0	0.583	7.4	LOS A	4.0	102.2	0.37	0.56	0.37	24.8
16	R2	All MCs	225	3.0	225	3.0	0.583	4.1	LOS A	4.0	102.2	0.37	0.56	0.37	24.9
Approach			710	3.0	710	3.0	0.583	6.4	LOS A	4.0	102.2	0.37	0.56	0.37	24.9
North: Washington Ave (SB)															
7	L2	All MCs	247	5.0	247	5.0	0.331	8.3	LOS A	1.8	47.6	0.61	0.67	0.61	24.3
4	T1	All MCs	44	5.0	44	5.0	0.331	4.8	LOS A	1.8	47.6	0.61	0.67	0.61	22.9
Approach			291	5.0	291	5.0	0.331	7.8	LOS A	1.8	47.6	0.61	0.67	0.61	24.1
All Vehicles			1370	5.0	1370	5.0	0.583	6.0	LOS A	4.0	102.2	0.45	0.57	0.45	24.7

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:57:20 PM

Project: C:\Users\Daniel Hodun\TISI Dropbox\Daniel Hodun\TISI Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan #554-1896-192\LOS\2044 Baseline + Alt 1.sip9

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↕			↖	↗		↕	
Traffic Volume (veh/h)	3	60	4	844	0	16	1	119	864	16	320	0
Future Volume (veh/h)	3	60	4	844	0	16	1	119	864	16	320	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	1572	1572	1572	1560	1560	1560	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	3	65	4	933	0	0	1	129	939	17	348	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	20	436	27	1047	550	0	39	308	1294	53	541	0
Arrive On Green	0.31	0.31	0.31	0.35	0.00	0.00	0.19	0.19	0.19	0.19	0.19	0.00
Sat Flow, veh/h	65	1402	86	2971	1560	0	2	1582	2364	59	2849	0
Grp Volume(v), veh/h	72	0	0	933	0	0	130	0	939	192	173	0
Grp Sat Flow(s),veh/h/ln	1553	0	0	1485	1560	0	1584	0	1182	1466	1370	0
Q Serve(g_s), s	3.2	0.0	0.0	28.2	0.0	0.0	0.0	0.0	18.5	1.6	11.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	28.2	0.0	0.0	6.8	0.0	18.5	10.8	11.0	0.0
Prop In Lane	0.04		0.06	1.00		0.00	0.01		1.00	0.09		0.00
Lane Grp Cap(c), veh/h	483	0	0	1047	550	0	347	0	1294	327	267	0
V/C Ratio(X)	0.15	0.00	0.00	0.89	0.00	0.00	0.38	0.00	0.73	0.59	0.65	0.00
Avail Cap(c_a), veh/h	483	0	0	1345	706	0	347	0	1294	327	267	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.91	0.00	0.00	1.00	0.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	23.7	0.0	0.0	29.0	0.0	0.0	33.6	0.0	13.9	35.1	35.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	10.5	0.0	0.0	1.0	0.0	2.2	2.3	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.0	0.0	16.6	0.0	0.0	4.8	0.0	17.0	7.1	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	0.0	0.0	39.6	0.0	0.0	34.5	0.0	16.2	37.4	39.5	0.0
LnGrp LOS	C	A	A	D	A	A	C	A	B	D	D	A
Approach Vol, veh/h		72		933			1069				365	
Approach Delay, s/veh		23.8		39.6			18.4				38.4	
Approach LOS		C		D			B				D	
Timer - Assigned Phs		2		4			6				8	
Phs Duration (G+Y+Rc), s		23.0		34.0			23.0				38.0	
Change Period (Y+Rc), s		4.5		4.5			4.5				4.5	
Max Green Setting (Gmax), s		18.5		20.0			18.5				43.0	
Max Q Clear Time (g_c+I1), s		20.5		5.2			13.0				30.2	
Green Ext Time (p_c), s		0.0		0.2			1.4				3.3	

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	26	913	2	0	773	7	30	4	5	121	4	50
Future Volume (veh/h)	26	913	2	0	773	7	30	4	5	121	4	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1560	1560	1560	1447	1447	1447	1535	1535	1535
Adj Flow Rate, veh/h	28	971	2	0	822	7	32	4	5	129	4	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	4	4	4	13	13	13	6	6	6
Cap, veh/h	74	2165	4	0	2241	19	203	24	22	213	9	63
Arrive On Green	0.99	0.99	0.99	0.00	0.74	0.74	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	46	2909	6	0	3089	26	842	151	138	922	55	389
Grp Volume(v), veh/h	514	0	487	0	404	425	41	0	0	186	0	0
Grp Sat Flow(s),veh/h/ln	1520	0	1441	0	1482	1555	1131	0	0	1366	0	0
Q Serve(g_s), s	0.0	0.0	0.6	0.0	9.1	9.1	0.0	0.0	0.0	9.6	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.6	0.0	9.1	9.1	2.9	0.0	0.0	12.5	0.0	0.0
Prop In Lane	0.05		0.00	0.00		0.02	0.78		0.12	0.69		0.28
Lane Grp Cap(c), veh/h	1171	0	1072	0	1103	1157	250	0	0	284	0	0
V/C Ratio(X)	0.44	0.00	0.45	0.00	0.37	0.37	0.16	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	1171	0	1072	0	1103	1157	344	0	0	386	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.86	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.1	0.0	0.1	0.0	4.3	4.3	34.6	0.0	0.0	38.6	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.2	0.0	0.9	0.9	0.4	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.8	0.0	4.6	4.8	1.5	0.0	0.0	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.2	0.0	1.3	0.0	5.2	5.2	35.0	0.0	0.0	41.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		1001			829			41			186	
Approach Delay, s/veh		1.2			5.2			35.0			41.6	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		75.2		19.8		75.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		22.5		63.5		22.5		63.5				
Max Q Clear Time (g_c+I1), s		4.9		2.6		14.5		11.1				
Green Ext Time (p_c), s		0.1		20.1		0.7		14.2				
Intersection Summary												
HCM 6th Ctrl Delay					7.2							
HCM 6th LOS					A							

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	770	78	104	670	19	15	34	16	28	202	94
Future Volume (veh/h)	97	770	78	104	670	19	15	34	16	28	202	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1572	1572	1572	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	100	794	80	107	691	20	15	35	16	29	208	97
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	127	1130	114	137	1243	36	33	288	237	57	316	263
Arrive On Green	0.08	0.41	0.41	0.09	0.42	0.42	0.02	0.18	0.18	0.04	0.20	0.20
Sat Flow, veh/h	1497	2739	276	1497	2965	86	1509	1585	1304	1521	1597	1332
Grp Volume(v), veh/h	100	433	441	107	348	363	15	35	16	29	208	97
Grp Sat Flow(s),veh/h/ln	1497	1494	1521	1497	1494	1557	1509	1585	1304	1521	1597	1332
Q Serve(g_s), s	4.3	15.6	15.6	4.6	11.5	11.5	0.6	1.2	0.7	1.2	7.8	4.1
Cycle Q Clear(g_c), s	4.3	15.6	15.6	4.6	11.5	11.5	0.6	1.2	0.7	1.2	7.8	4.1
Prop In Lane	1.00		0.18	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	616	627	137	626	653	33	288	237	57	316	263
V/C Ratio(X)	0.79	0.70	0.70	0.78	0.56	0.56	0.45	0.12	0.07	0.51	0.66	0.37
Avail Cap(c_a), veh/h	817	1733	1764	1047	1733	1806	1055	1108	911	596	1117	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	15.8	15.8	28.9	14.3	14.3	31.4	22.3	22.1	30.7	24.1	22.6
Incr Delay (d2), s/veh	12.1	1.8	1.7	11.0	0.9	0.9	11.3	0.2	0.1	8.1	2.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	8.9	9.0	3.6	6.7	7.0	0.6	0.8	0.4	1.0	5.5	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	17.6	17.6	40.0	15.2	15.2	42.7	22.5	22.2	38.9	26.9	23.6
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		974			818			66			334	
Approach Delay, s/veh		20.0			18.5			27.0			27.0	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	16.3	10.4	31.4	5.9	17.4	10.0	31.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax)	25.5	45.5	45.5	75.5	45.5	45.5	35.5	75.5				
Max Q Clear Time (g_c+1)	13.2	3.2	6.6	17.6	2.6	9.8	6.3	13.5				
Green Ext Time (p_c), s	0.1	0.3	0.4	9.2	0.0	2.1	0.3	6.9				
Intersection Summary												
HCM 6th Ctrl Delay											20.7	
HCM 6th LOS											C	

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

07/01/2024

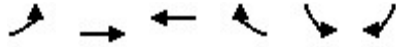


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕	
Traffic Volume (veh/h)	11	766	21	8	694	0	47	5	13	12	15	3
Future Volume (veh/h)	11	766	21	8	694	0	47	5	13	12	15	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.87		0.91	0.93		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1560	1560	1535	1535	1535	1560	1560	1560	1610	1610	1610
Adj Flow Rate, veh/h	12	815	22	9	738	0	50	5	14	13	16	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	6	6	6	4	4	4	0	0	0
Cap, veh/h	45	2231	60	35	1190	0	172	19	36	111	119	19
Arrive On Green	0.78	0.78	0.78	0.78	0.78	0.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	18	2847	76	6	1519	0	849	137	251	488	840	137
Grp Volume(v), veh/h	444	0	405	747	0	0	69	0	0	32	0	0
Grp Sat Flow(s),veh/h/ln	1538	0	1404	1526	0	0	1238	0	0	1465	0	0
Q Serve(g_s), s	0.0	0.0	10.5	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.3	0.0	10.5	24.6	0.0	0.0	5.9	0.0	0.0	2.2	0.0	0.0
Prop In Lane	0.03		0.05	0.01		0.00	0.72		0.20	0.41		0.09
Lane Grp Cap(c), veh/h	1236	0	1100	1226	0	0	227	0	0	249	0	0
V/C Ratio(X)	0.36	0.00	0.37	0.61	0.00	0.00	0.30	0.00	0.00	0.13	0.00	0.00
Avail Cap(c_a), veh/h	1236	0	1100	1226	0	0	313	0	0	351	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.00	0.71	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	3.9	5.5	0.0	0.0	46.7	0.0	0.0	45.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	2.3	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	5.4	0.0	5.0	11.8	0.0	0.0	3.4	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.5	0.0	4.6	7.7	0.0	0.0	46.9	0.0	0.0	45.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		849			747			69			32	
Approach Delay, s/veh		4.6			7.7			46.9			45.2	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		98.5		21.5		98.5		21.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		85.5		25.5		85.5		25.5				
Max Q Clear Time (g_c+I1), s		12.5		4.2		26.6		7.9				
Green Ext Time (p_c), s		11.1		0.1		11.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay					8.5							
HCM 6th LOS					A							

HCM 6th Signalized Intersection Summary

40: Burwell St (SR 304) & Park Ave

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (veh/h)	60	356	208	10	24	39
Future Volume (veh/h)	60	356	208	10	24	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1497	1497	1572	1572	1522	1522
Adj Flow Rate, veh/h	61	363	212	10	24	40
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	9	3	3	7	7
Cap, veh/h	339	936	1090	51	56	94
Arrive On Green	0.38	0.38	0.38	0.38	0.11	0.11
Sat Flow, veh/h	216	2561	2982	136	495	826
Grp Volume(v), veh/h	236	188	109	113	65	0
Grp Sat Flow(s),veh/h/ln	1415	1294	1494	1546	1342	0
Q Serve(g_s), s	0.0	1.9	0.9	0.9	0.8	0.0
Cycle Q Clear(g_c), s	2.1	1.9	0.9	0.9	0.8	0.0
Prop In Lane	0.26			0.09	0.37	0.62
Lane Grp Cap(c), veh/h	789	486	561	581	152	0
V/C Ratio(X)	0.30	0.39	0.19	0.20	0.43	0.00
Avail Cap(c_a), veh/h	3799	3343	3859	3994	1943	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.1	4.0	3.7	3.7	7.3	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.1	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.2	0.1	0.1	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.2	4.4	3.8	3.8	8.7	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		424	222		65	
Approach Delay, s/veh		4.3	3.8		8.7	
Approach LOS		A	A		A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.1		6.5		11.1
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		45.5		25.5		45.5
Max Q Clear Time (g_c+I1), s		4.1		2.8		2.9
Green Ext Time (p_c), s		2.4		0.1		1.2
Intersection Summary						
HCM 6th Ctrl Delay			4.6			
HCM 6th LOS			A			

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

42: Pacific Ave & Burwell St (SR 304)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔						↔	↔
Traffic Volume (veh/h)	15	135	240	117	172	25	0	0	0	14	200	8
Future Volume (veh/h)	15	135	240	117	172	25	0	0	0	14	200	8
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	0.95		0.99				1.00		0.76
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1472	1472	1472	1497	1497	1497				1547	1547	1547
Adj Flow Rate, veh/h	17	153	273	133	195	28				16	227	9
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	11	11	11	9	9	9				5	5	5
Cap, veh/h	127	611	482	282	340	42				34	481	19
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44				0.35	0.35	0.35
Sat Flow, veh/h	52	1400	1104	347	779	96				96	1363	54
Grp Volume(v), veh/h	170	0	273	356	0	0				252	0	0
Grp Sat Flow(s),veh/h/ln	1452	0	1104	1222	0	0				1513	0	0
Q Serve(g_s), s	0.0	0.0	7.0	4.9	0.0	0.0				4.9	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	7.0	8.2	0.0	0.0				4.9	0.0	0.0
Prop In Lane	0.10		1.00	0.37		0.08				0.06		0.04
Lane Grp Cap(c), veh/h	738	0	482	663	0	0				534	0	0
V/C Ratio(X)	0.23	0.00	0.57	0.54	0.00	0.00				0.47	0.00	0.00
Avail Cap(c_a), veh/h	1838	0	1338	1562	0	0				1235	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	6.8	0.0	8.0	8.2	0.0	0.0				9.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.1	0.7	0.0	0.0				0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.0	2.4	3.1	0.0	0.0				2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	0.0	9.1	8.8	0.0	0.0				10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				B	A	A
Approach Vol, veh/h		443			356						252	
Approach Delay, s/veh		8.3			8.8						10.2	
Approach LOS		A			A						B	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		20.6		17.4		20.6						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		46.0		31.0		46.0						
Max Q Clear Time (g_c+I1), s		9.0		6.9		10.2						
Green Ext Time (p_c), s		2.4		1.6		3.1						
Intersection Summary												
HCM 6th Ctrl Delay											8.9	
HCM 6th LOS											A	

HCM 6th Signalized Intersection Summary

43: Washington Ave & Burwell St (SR 304)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Volume (veh/h)	69	1	0	0	3	1	101	195	0	0	0	228
Future Volume (veh/h)	69	1	0	0	3	1	101	195	0	0	0	228
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1610	1610	1434	1434	1434	1459	1459	1459
Adj Flow Rate, veh/h	76	1	0	0	3	1	111	214	0	0	0	251
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	0	0	0	0	14	14	14	12	12	12
Cap, veh/h	140	2	0	0	8	3	418	744	0	0	0	540
Arrive On Green	0.09	0.09	0.00	0.00	0.01	0.01	0.46	0.46	0.00	0.00	0.00	0.46
Sat Flow, veh/h	1491	20	0	0	1155	385	489	1684	0	0	0	1173
Grp Volume(v), veh/h	77	0	0	0	0	4	172	153	0	0	0	251
Grp Sat Flow(s),veh/h/ln	1510	0	0	0	0	1539	868	1240	0	0	0	1173
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.1	2.2	2.3	0.0	0.0	0.0	4.5
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.0	0.0	0.1	6.7	2.3	0.0	0.0	0.0	4.5
Prop In Lane	0.99		0.00	0.00		0.25	0.65		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	142	0	0	0	0	10	592	570	0	0	0	540
V/C Ratio(X)	0.54	0.00	0.00	0.00	0.00	0.40	0.29	0.27	0.00	0.00	0.00	0.47
Avail Cap(c_a), veh/h	1254	0	0	0	0	777	2090	2240	0	0	0	2121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	15.2	6.5	5.1	0.0	0.0	0.0	5.7
Incr Delay (d2), s/veh	2.4	0.0	0.0	0.0	0.0	9.1	0.3	0.3	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.0	0.0	0.0	0.0	0.1	0.8	0.7	0.0	0.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.0	0.0	0.0	0.0	24.3	6.8	5.4	0.0	0.0	0.0	6.5
LnGrp LOS	B	A	A	A	A	C	A	A	A	A	A	A
Approach Vol, veh/h		77			4			325				251
Approach Delay, s/veh		15.7			24.3			6.2				6.5
Approach LOS		B			C			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.6		7.4		18.6		4.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		25.5		55.5		15.5				
Max Q Clear Time (g_c+I1), s		8.7		3.5		6.5		2.1				
Green Ext Time (p_c), s		3.0		0.3		2.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												7.5
HCM 6th LOS												A

HCM 6th Signalized Intersection Summary
 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖↗	↑	↗	↖	↑↑		↖	↑↗	
Traffic Volume (veh/h)	39	190	24	82	13	40	3	896	0	85	855	1
Future Volume (veh/h)	39	190	24	82	13	40	3	896	0	85	855	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1560	1560	1522	1522	1522	1585	1585	0	1585	1585	1585
Adj Flow Rate, veh/h	41	198	25	85	14	0	3	933	0	89	891	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	7	7	7	2	2	0	2	2	2
Cap, veh/h	72	292	244	206	323		7	1221	0	113	1467	2
Arrive On Green	0.05	0.19	0.19	0.07	0.21	0.00	0.00	0.41	0.00	0.07	0.48	0.48
Sat Flow, veh/h	1485	1560	1303	2812	1522	1290	1509	3091	0	1509	3086	3
Grp Volume(v), veh/h	41	198	25	85	14	0	3	933	0	89	435	457
Grp Sat Flow(s),veh/h/ln	1485	1560	1303	1406	1522	1290	1509	1506	0	1509	1506	1584
Q Serve(g_s), s	1.7	7.5	1.0	1.8	0.5	0.0	0.1	17.0	0.0	3.7	13.6	13.6
Cycle Q Clear(g_c), s	1.7	7.5	1.0	1.8	0.5	0.0	0.1	17.0	0.0	3.7	13.6	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	72	292	244	206	323		7	1221	0	113	716	753
V/C Ratio(X)	0.57	0.68	0.10	0.41	0.04		0.41	0.76	0.00	0.79	0.61	0.61
Avail Cap(c_a), veh/h	1307	686	573	707	383		379	4044	0	379	2022	2128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	24.1	21.4	28.2	19.9	0.0	31.6	16.3	0.0	29.0	12.3	12.3
Incr Delay (d2), s/veh	6.8	2.7	0.2	1.3	0.1	0.0	12.9	0.8	0.0	4.6	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	5.2	0.6	1.1	0.3	0.0	0.1	9.1	0.0	2.6	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	26.8	21.6	29.5	20.0	0.0	44.5	17.1	0.0	33.5	12.9	12.9
LnGrp LOS	D	C	C	C	B		D	B	A	C	B	B
Approach Vol, veh/h		264			99			936			981	
Approach Delay, s/veh		27.8			28.2			17.2			14.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.3	34.8	8.7	15.9	8.8	30.3	7.1	17.5				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.0	4.0	4.5	4.0	4.0				
Max Green Setting (Gmax), s	16.0	85.5	16.0	28.0	16.0	85.5	56.0	16.0				
Max Q Clear Time (g_c+1/2), s	11.5	15.6	3.8	9.5	5.7	19.0	3.7	2.5				
Green Ext Time (p_c), s	0.0	5.4	0.2	1.1	0.1	6.8	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

45: Charleston Blvd (SR 304) & Charleston Beach Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↕		↖	↑↑	↗	↖	↑↑	↖
Traffic Volume (veh/h)	23	22	14	8	1	12	12	1152	67	30	964	17
Future Volume (veh/h)	23	22	14	8	1	12	12	1152	67	30	964	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1447	1447	1447	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	24	23	15	8	1	13	13	1213	71	32	1015	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	13	13	13	2	2	2	2	2	2
Cap, veh/h	35	34	22	51	3	42	29	1769	789	61	2457	44
Arrive On Green	0.06	0.06	0.06	0.04	0.04	0.04	0.02	0.59	0.59	0.04	0.61	0.61
Sat Flow, veh/h	572	548	357	1378	88	1144	1509	3011	1343	1509	4036	72
Grp Volume(v), veh/h	62	0	0	8	0	14	13	1213	71	32	638	395
Grp Sat Flow(s),veh/h/ln1477	0	0	1378	0	1232	1509	1506	1343	1509	1268	1572	
Q Serve(g_s), s	2.7	0.0	0.0	0.4	0.0	0.7	0.6	18.3	1.5	1.4	8.7	8.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.4	0.0	0.7	0.6	18.3	1.5	1.4	8.7	8.7
Prop In Lane	0.39		0.24	1.00		0.93	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	91	0	0	51	0	45	29	1769	789	61	1543	957
V/C Ratio(X)	0.68	0.00	0.00	0.16	0.00	0.31	0.45	0.69	0.09	0.53	0.41	0.41
Avail Cap(c_a), veh/h	359	0	0	1371	0	1225	355	3887	1734	355	3273	2029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	30.7	0.0	30.9	31.9	9.4	5.9	31.0	6.7	6.7
Incr Delay (d2), s/veh	8.5	0.0	0.0	1.1	0.0	2.8	3.9	0.7	0.1	2.6	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr2.1	0.0	0.0	0.0	0.2	0.0	0.4	0.4	7.6	0.6	0.9	3.4	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	0.0	0.0	31.8	0.0	33.7	35.9	10.1	6.0	33.6	7.0	7.1
LnGrp LOS	D	A	A	C	A	C	D	B	A	C	A	A
Approach Vol, veh/h		62			22			1297			1065	
Approach Delay, s/veh		38.8			33.0			10.1			7.8	
Approach LOS		D			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s5.8	45.1			6.9	7.2	43.7		8.1				
Change Period (Y+Rc), s 4.5	5.0			4.5	4.5	5.0		4.0				
Max Green Setting (Gmax), s 15.5	85.0			65.5	15.5	85.0		16.0				
Max Q Clear Time (g_c+12,6	10.7			2.7	3.4	20.3		4.7				
Green Ext Time (p_c), s 0.0	14.0			0.1	0.0	18.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Traffic Volume (veh/h)	5	192	8	94	184	122	20	45	118	37	32	5
Future Volume (veh/h)	5	192	8	94	184	122	20	45	118	37	32	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1409	1409	1409	1510	1510	1510	1560	1560	1560	1497	1497	1497
Adj Flow Rate, veh/h	6	223	9	109	214	142	23	52	0	43	37	6
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	16	16	16	8	8	8	4	4	4	9	9	9
Cap, veh/h	13	427	17	167	319	212	383	223		371	180	29
Arrive On Green	0.01	0.32	0.32	0.12	0.38	0.38	0.14	0.14	0.00	0.14	0.14	0.14
Sat Flow, veh/h	1342	1345	54	1438	847	562	1342	1560	1322	1277	1257	204
Grp Volume(v), veh/h	6	0	232	109	0	356	23	52	0	43	0	43
Grp Sat Flow(s),veh/h/ln	1342	0	1399	1438	0	1408	1342	1560	1322	1277	0	1460
Q Serve(g_s), s	0.1	0.0	4.3	2.3	0.0	6.7	0.5	0.9	0.0	1.0	0.0	0.8
Cycle Q Clear(g_c), s	0.1	0.0	4.3	2.3	0.0	6.7	1.3	0.9	0.0	1.9	0.0	0.8
Prop In Lane	1.00		0.04	1.00		0.40	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	13	0	444	167	0	531	383	223		371	0	209
V/C Ratio(X)	0.46	0.00	0.52	0.65	0.00	0.67	0.06	0.23		0.12	0.00	0.21
Avail Cap(c_a), veh/h	1031	0	1953	1398	0	1590	1285	1272		1430	0	1420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	8.9	13.5	0.0	8.3	12.6	12.1	0.0	13.0	0.0	12.1
Incr Delay (d2), s/veh	31.8	0.0	1.4	5.9	0.0	2.1	0.1	0.8	0.0	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	1.8	1.5	0.0	2.6	0.2	0.6	0.0	0.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	10.3	19.4	0.0	10.4	12.7	12.9	0.0	13.2	0.0	12.9
LnGrp LOS	D	A	B	B	A	B	B	B		B	A	B
Approach Vol, veh/h		238			465			75			86	
Approach Delay, s/veh		11.2			12.5			12.8			13.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	17.5		8.6	7.7	15.6		8.6				
Change Period (Y+Rc), s	5.5	* 5.5		4.0	4.0	5.5		4.0				
Max Green Setting (Gmax), s	24.5	* 36		26.0	31.0	44.5		31.0				
Max Q Clear Time (g_c+1/2), s	11.5	8.7		3.3	4.3	6.3		3.9				
Green Ext Time (p_c), s	0.0	3.3		0.4	0.5	2.1		0.6				

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	7	341	12	73	510	141	10	6	114	86	11	30
Future Volume (veh/h)	7	341	12	73	510	141	10	6	114	86	11	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1522	1522	1522	1510	1510	1510	1522	1522	1522	1346	1346	1346
Adj Flow Rate, veh/h	8	371	13	79	554	0	11	7	0	93	12	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	8	8	8	7	7	7	21	21	21
Cap, veh/h	19	873	31	140	1120		417	205		402	181	
Arrive On Green	0.01	0.31	0.31	0.10	0.39	0.00	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	1450	2850	100	1438	2868	1279	1344	1522	0	1194	1346	0
Grp Volume(v), veh/h	8	188	196	79	554	0	11	7	0	93	12	0
Grp Sat Flow(s),veh/h/ln	1450	1446	1504	1438	1434	1279	1344	1522	0	1194	1346	0
Q Serve(g_s), s	0.2	3.0	3.0	1.5	4.3	0.0	0.2	0.1	0.0	2.1	0.2	0.0
Cycle Q Clear(g_c), s	0.2	3.0	3.0	1.5	4.3	0.0	0.4	0.1	0.0	2.3	0.2	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	19	443	461	140	1120		417	205		402	181	
V/C Ratio(X)	0.43	0.42	0.43	0.57	0.49		0.03	0.03		0.23	0.07	
Avail Cap(c_a), veh/h	521	2003	2083	1500	5935		1638	1588		1487	1405	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	8.1	8.1	12.6	6.7	0.0	11.2	11.0	0.0	12.0	11.0	0.0
Incr Delay (d2), s/veh	20.5	0.9	0.9	5.0	0.4	0.0	0.1	0.1	0.0	0.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	1.2	1.2	1.0	1.3	0.0	0.1	0.1	0.0	0.9	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	9.0	9.0	17.6	7.1	0.0	11.3	11.1	0.0	12.6	11.4	0.0
LnGrp LOS	C	A	A	B	A		B	B		B	B	
Approach Vol, veh/h		392			633			18			105	
Approach Delay, s/veh		9.5			8.4			11.2			12.5	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	15.9		8.4	7.3	13.5		8.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.5	60.5		30.5	30.5	40.5		30.5				
Max Q Clear Time (g_c+1), s	12.2	6.3		2.4	3.5	5.0		4.3				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.3	3.4		0.8				

Intersection Summary

HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary

48: National Ave & Loxie Eagans Blvd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	223	81	6	152	2	125	55	9	10	29	240
Future Volume (veh/h)	251	223	81	6	152	2	125	55	9	10	29	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1535	1535	1535	1560	1560	1560	1547	1547	1547
Adj Flow Rate, veh/h	251	225	82	6	154	2	126	56	9	10	29	242
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	6	6	6	4	4	4	5	5	5
Cap, veh/h	292	632	223	14	322	4	162	72	205	86	249	287
Arrive On Green	0.20	0.30	0.30	0.01	0.11	0.11	0.16	0.16	0.16	0.22	0.22	0.22
Sat Flow, veh/h	1485	2132	752	1462	2947	38	1044	464	1319	392	1136	1309
Grp Volume(v), veh/h	251	154	153	6	76	80	182	0	9	39	0	242
Grp Sat Flow(s),veh/h/ln	1485	1482	1402	1462	1458	1528	1508	0	1319	1528	0	1309
Q Serve(g_s), s	9.2	4.6	4.9	0.2	2.8	2.8	6.5	0.0	0.3	1.2	0.0	10.0
Cycle Q Clear(g_c), s	9.2	4.6	4.9	0.2	2.8	2.8	6.5	0.0	0.3	1.2	0.0	10.0
Prop In Lane	1.00		0.54	1.00		0.03	0.69		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	292	439	416	14	159	167	234	0	205	334	0	287
V/C Ratio(X)	0.86	0.35	0.37	0.43	0.48	0.48	0.78	0.00	0.04	0.12	0.00	0.84
Avail Cap(c_a), veh/h	330	1105	1046	156	919	963	455	0	398	461	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	15.6	15.6	27.7	23.6	23.6	22.8	0.0	20.2	17.6	0.0	21.1
Incr Delay (d2), s/veh	18.2	0.5	0.5	19.5	2.2	2.1	5.5	0.0	0.1	0.2	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.8	2.6	2.6	0.3	1.7	1.8	4.6	0.0	0.2	0.7	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	16.0	16.2	47.3	25.8	25.7	28.3	0.0	20.3	17.8	0.0	32.5
LnGrp LOS	D	B	B	D	C	C	C	A	C	B	A	C
Approach Vol, veh/h		558			162			191			281	
Approach Delay, s/veh		26.9			26.5			27.9			30.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	21.2		16.8	15.6	10.7		13.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	42.0	42.0		17.0	12.5	35.5		17.0				
Max Q Clear Time (g_c+1), s	6.9	6.9		12.0	11.2	4.8		8.5				
Green Ext Time (p_c), s	0.0	1.9		0.5	0.1	0.8		0.6				

Intersection Summary

HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Intersection

Intersection Delay, s/veh 8.8
 Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑			↑
Traffic Vol, veh/h	67	8	120	0	0	127
Future Vol, veh/h	67	8	120	0	0	127
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	10	10	24	24
Mvmt Flow	88	11	158	0	0	167
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.6	8.6	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	89%	0%
Vol Thru, %	100%	0%	100%
Vol Right, %	0%	11%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	120	75	127
LT Vol	0	67	0
Through Vol	120	0	127
RT Vol	0	8	0
Lane Flow Rate	158	99	167
Geometry Grp	1	1	1
Degree of Util (X)	0.198	0.132	0.22
Departure Headway (Hd)	4.511	4.832	4.73
Convergence, Y/N	Yes	Yes	Yes
Cap	797	743	760
Service Time	2.527	2.853	2.746
HCM Lane V/C Ratio	0.198	0.133	0.22
HCM Control Delay	8.6	8.6	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.5	0.8

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	40	73	60	138	152	134
Future Vol, veh/h	40	73	60	138	152	134
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	60	109	90	206	227	200

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	717	331	429	0	-	0
Stage 1	329	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.15	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.245	-	-	-
Pot Cap-1 Maneuver	389	699	1115	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	352	697	1113	-	-	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	2.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1113	-	517	-	-
HCM Lane V/C Ratio	0.08	-	0.326	-	-
HCM Control Delay (s)	8.5	0	15.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.4	-	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	67	1	0	94	10	0	8	1	0	10	85
Future Vol, veh/h	20	67	1	0	94	10	0	8	1	0	10	85
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	3	3	3	1	1	1	0	0	0	8	8	8
Mvmt Flow	27	92	1	0	129	14	0	11	1	0	14	116
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.2	7.7	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	23%	0%	0%
Vol Thru, %	89%	76%	90%	11%
Vol Right, %	11%	1%	10%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	88	104	95
LT Vol	0	20	0	0
Through Vol	8	67	94	10
RT Vol	1	1	10	85
Lane Flow Rate	12	121	142	130
Geometry Grp	1	1	1	1
Degree of Util (X)	0.016	0.149	0.171	0.148
Departure Headway (Hd)	4.57	4.46	4.311	4.107
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	784	808	836	876
Service Time	2.59	2.465	2.314	2.122
HCM Lane V/C Ratio	0.015	0.15	0.17	0.148
HCM Control Delay	7.7	8.2	8.2	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.5	0.6	0.5

Intersection

Intersection Delay, s/veh 11.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	55	165	50	46	0	165	66	37	4	47	7
Future Vol, veh/h	7	55	165	50	46	0	165	66	37	4	47	7
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	19	19	19
Mvmt Flow	9	72	217	66	61	0	217	87	49	5	62	9
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	12.5	11.3	11.9	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	52%	100%	0%
Vol Thru, %	0%	64%	0%	25%	48%	0%	87%
Vol Right, %	0%	36%	0%	75%	0%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	103	7	220	96	4	54
LT Vol	165	0	7	0	50	4	0
Through Vol	0	66	0	55	46	0	47
RT Vol	0	37	0	165	0	0	7
Lane Flow Rate	217	136	9	289	126	5	71
Geometry Grp	5	5	5	5	4b	5	5
Degree of Util (X)	0.387	0.213	0.017	0.444	0.225	0.01	0.129
Departure Headway (Hd)	6.42	5.659	6.557	5.522	6.417	7.156	6.554
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	560	634	546	651	560	500	546
Service Time	4.153	3.391	4.289	3.253	4.455	4.901	4.299
HCM Lane V/C Ratio	0.388	0.215	0.016	0.444	0.225	0.01	0.13
HCM Control Delay	13.2	9.9	9.4	12.6	11.3	10	10.3
HCM Lane LOS	B	A	A	B	B	A	B
HCM 95th-tile Q	1.8	0.8	0.1	2.3	0.9	0	0.4

MOVEMENT SUMMARY

Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
East: Harkins St (WB)															
6	T1	All MCs	254	1.7	254	1.7	0.254	6.3	LOS A	1.3	32.8	0.46	0.55	0.46	34.5
16	R2	All MCs	17	1.7	17	1.7	0.254	6.1	LOS A	1.3	32.8	0.46	0.55	0.46	34.2
Approach			271	1.7	271	1.7	0.254	6.3	LOS A	1.3	32.8	0.46	0.55	0.46	34.4
North: Wheaton Way (SB)															
7u	U	All MCs	1	3.1	1	3.1	0.356	12.5	LOS B	2.1	55.0	0.49	0.59	0.49	34.0
7	L2	All MCs	15	3.1	15	3.1	0.356	10.5	LOS B	2.1	55.0	0.49	0.59	0.49	34.0
14	R2	All MCs	367	3.1	367	3.1	0.356	6.0	LOS A	2.1	55.0	0.49	0.59	0.49	34.4
Approach			383	3.1	383	3.1	0.356	6.2	LOS A	2.1	55.0	0.49	0.59	0.49	34.4
West: Manette Bridge (EB)															
5	L2	All MCs	296	6.2	296	6.2	0.343	9.1	LOS A	2.2	58.4	0.12	0.59	0.12	33.3
2	T1	All MCs	141	6.2	141	6.2	0.343	4.9	LOS A	2.2	58.4	0.12	0.59	0.12	33.9
Approach			437	6.2	437	6.2	0.343	7.7	LOS A	2.2	58.4	0.12	0.59	0.12	33.5
All Vehicles			1091	4.0	1091	4.0	0.356	6.8	LOS A	2.2	58.4	0.34	0.58	0.34	34.0

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:57:54 PM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Baseline + Alt 1.sip9

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕						↕
Traffic Vol, veh/h	0	0	0	163	6	0	0	0	0	0	0	43
Future Vol, veh/h	0	0	0	163	6	0	0	0	0	0	0	43
Conflicting Peds, #/hr	0	0	0	4	0	0	0	0	0	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	3	3	3	0	0	0	9	9	9
Mvmt Flow	0	0	0	183	7	0	0	0	0	0	0	48

Major/Minor	Major2			Minor2		
Conflicting Flow All	4	0	0	-	-	12
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	-	-	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	-	-	3.381
Pot Cap-1 Maneuver	1611	-	0	0	0	1049
Stage 1	-	-	0	0	0	-
Stage 2	-	-	0	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1611	-	-	-	0	1049
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-

Approach	WB	SB
HCM Control Delay, s	7.3	8.6
HCM LOS		A

Minor Lane/Major Mvmt	WBL	WBT	SBLn1
Capacity (veh/h)	1611	-	1049
HCM Lane V/C Ratio	0.114	-	0.046
HCM Control Delay (s)	7.5	0	8.6
HCM Lane LOS	A	A	A
HCM 95th %tile Q(veh)	0.4	-	0.1

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	22	88	13	12	213
Future Vol, veh/h	20	22	88	13	12	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	25	27	109	16	15	263

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	410	117	0
Stage 1	117	-	-
Stage 2	293	-	-
Critical Hdwy	6.45	6.25	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	-
Pot Cap-1 Maneuver	592	927	-
Stage 1	901	-	-
Stage 2	750	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	586	927	-
Mov Cap-2 Maneuver	586	-	-
Stage 1	901	-	-
Stage 2	743	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	726	1468
HCM Lane V/C Ratio	-	-	0.071	0.01
HCM Control Delay (s)	-	-	10.3	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection

Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	3	215	46	43	246	17	35	18	24	28	60	10
Future Vol, veh/h	3	215	46	43	246	17	35	18	24	28	60	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	4	4	4	6	6	6	10	10	10	0	0	0
Mvmt Flow	4	256	55	51	293	20	42	21	29	33	71	12
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	13.2	12.9	10.1	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	45%	100%	0%	100%	0%	29%
Vol Thru, %	23%	0%	82%	0%	94%	61%
Vol Right, %	31%	0%	18%	0%	6%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	3	261	43	263	98
LT Vol	35	3	0	43	0	28
Through Vol	18	0	215	0	246	60
RT Vol	24	0	46	0	17	10
Lane Flow Rate	92	4	311	51	313	117
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.153	0.006	0.477	0.087	0.485	0.19
Departure Headway (Hd)	6	6.162	5.531	6.124	5.573	5.865
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	597	582	652	586	648	611
Service Time	4.043	3.89	3.259	3.85	3.299	3.906
HCM Lane V/C Ratio	0.154	0.007	0.477	0.087	0.483	0.191
HCM Control Delay	10.1	8.9	13.2	9.4	13.5	10.3
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	0.5	0	2.6	0.3	2.7	0.7

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕	↕	↕			↕	
Traffic Vol, veh/h	0	0	0	88	1	293	81	105	0	0	146	209
Future Vol, veh/h	0	0	0	88	1	293	81	105	0	0	146	209
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	3	3	3	5	5	5	4	4	4
Mvmt Flow	0	0	0	97	1	322	89	115	0	0	160	230

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	453	453	115 160 0 - - - 0
Stage 1	293	293	- - - - - - - -
Stage 2	160	160	- - - - - - - -
Critical Hdwy	6.43	6.53	6.23 4.15 - - - - -
Critical Hdwy Stg 1	5.43	5.53	- - - - - - - -
Critical Hdwy Stg 2	5.43	5.53	- - - - - - - -
Follow-up Hdwy	3.527	4.027	3.327 2.245 - - - - -
Pot Cap-1 Maneuver	563	501	935 1401 - 0 0 - -
Stage 1	755	668	- - - 0 0 - -
Stage 2	866	764	- - - 0 0 - -
Platoon blocked, %			- - - - - - - -
Mov Cap-1 Maneuver	525	0	935 1401 - - - - -
Mov Cap-2 Maneuver	525	0	- - - - - - - -
Stage 1	704	0	- - - - - - - -
Stage 2	866	0	- - - - - - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.5	3.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1401	- 525 935	- -	-
HCM Lane V/C Ratio	0.064	- 0.186 0.344	- -	-
HCM Control Delay (s)	7.7	0 13.4 10.9	- -	-
HCM Lane LOS	A	A B B	- -	-
HCM 95th %tile Q(veh)	0.2	- 0.7 1.5	- -	-

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	93	0	26	0	0	0	0	125	110	189	124	0
Future Vol, veh/h	93	0	26	0	0	0	0	125	110	189	124	0
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	4	4	4
Mvmt Flow	107	0	30	0	0	0	0	144	126	217	143	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	784	847	143	-	0	0	270	0	0
Stage 1	577	577	-	-	-	-	-	-	-
Stage 2	207	270	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.236	-	-
Pot Cap-1 Maneuver	362	299	905	0	-	-	1282	-	0
Stage 1	562	502	-	0	-	-	-	-	0
Stage 2	828	686	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	295	0	905	-	-	-	1282	-	-
Mov Cap-2 Maneuver	295	0	-	-	-	-	-	-	-
Stage 1	562	0	-	-	-	-	-	-	-
Stage 2	676	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22	0	5.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	346	1282	-
HCM Lane V/C Ratio	-	-	0.395	0.169	-
HCM Control Delay (s)	-	-	22	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.6	-

Intersection

Int Delay, s/veh 37.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Vol, veh/h	0	457	114	194	555	0	0	0	0	154	0	156
Future Vol, veh/h	0	457	114	194	555	0	0	0	0	154	0	156
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Stop
Storage Length	-	-	175	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	497	124	211	603	0	0	0	0	167	0	170

Major/Minor

	Major1			Major2			Minor2		
Conflicting Flow All	-	0	-	497	0	0	1274	1522	302
Stage 1	-	-	-	-	-	-	1025	1025	-
Stage 2	-	-	-	-	-	-	249	497	-
Critical Hdwy	-	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	0	-	0	1063	-	0	~ 159	117	694
Stage 1	0	-	0	-	-	0	307	311	-
Stage 2	0	-	0	-	-	0	769	543	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1063	-	-	~ 111	0	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 111	0	-
Stage 1	-	-	-	-	-	-	307	0	-
Stage 2	-	-	-	-	-	-	539	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	3	174.4
HCM LOS			F

Minor Lane/Major Mvmt

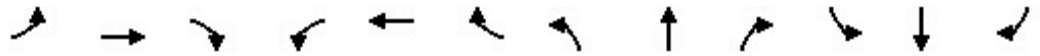
	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1063	-	111	694
HCM Lane V/C Ratio	-	0.198	-	1.508	0.244
HCM Control Delay (s)	-	9.2	0.8	\$ 339	11.9
HCM Lane LOS	-	A	A	F	B
HCM 95th %tile Q(veh)	-	0.7	-	12.2	1

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕			
Traffic Volume (veh/h)	198	338	0	0	396	136	401	1	194	0	0	0
Future Volume (veh/h)	198	338	0	0	396	136	401	1	194	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1535	1535	0	0	1547	1547	1522	1522	1522			
Adj Flow Rate, veh/h	204	348	0	0	408	0	413	1	200			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	6	6	0	0	5	5	7	7	7			
Cap, veh/h	0	909	0	0	917		581	1	518			
Arrive On Green	0.00	0.31	0.00	0.00	0.31	0.00	0.40	0.40	0.40			
Sat Flow, veh/h	0	2993	0	0	3094	0	1446	4	1290			
Grp Volume(v), veh/h	0	348	0	0	408	0	414	0	200			
Grp Sat Flow(s),veh/h/ln	0	1458	0	0	1470	0	1450	0	1290			
Q Serve(g_s), s	0.0	3.0	0.0	0.0	3.6	0.0	7.7	0.0	3.5			
Cycle Q Clear(g_c), s	0.0	3.0	0.0	0.0	3.6	0.0	7.7	0.0	3.5			
Prop In Lane	0.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	909	0	0	917		582	0	518			
V/C Ratio(X)	0.00	0.38	0.00	0.00	0.45		0.71	0.00	0.39			
Avail Cap(c_a), veh/h	0	5854	0	0	3648		1365	0	1215			
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	8.8	0.0	8.0	0.0	6.8			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.3	0.0	1.6	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	0.0	1.1	0.0	0.0	1.4	0.0	2.8	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	0.0	0.0	9.2	0.0	9.7	0.0	7.3			
LnGrp LOS	A	A	A	A	A		A	A	A			
Approach Vol, veh/h		348			408			614				
Approach Delay, s/veh		8.9			9.2			8.9				
Approach LOS		A			A			A				
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	14.6		17.5		14.6						
Change Period (Y+Rc), s	4.6	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	39.8		30.2		64.4						
Max Q Clear Time (g_c+I1), s	0.0	5.6		9.7		5.0						
Green Ext Time (p_c), s	0.0	2.8		3.3		2.5						

Intersection Summary

HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary

137: Wheaton Way (SR 303) & Broad St/Private Drwy

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	33	0	37	9	0	0	26	1040	14	5	1084	19
Future Volume (veh/h)	33	0	37	9	0	0	26	1040	14	5	1084	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1447	1447	1447	1610	1610	1610	1560	1560	1560	1560	1560	1560
Adj Flow Rate, veh/h	38	0	43	10	0	0	30	1195	16	6	1246	22
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	13	13	0	0	0	4	4	4	4	4	4
Cap, veh/h	137	0	81	96	108	0	441	2513	34	395	2450	43
Arrive On Green	0.07	0.00	0.07	0.07	0.00	0.00	0.02	0.84	0.84	0.01	1.00	1.00
Sat Flow, veh/h	1271	0	1204	1368	1610	0	1485	2993	40	1485	2979	53
Grp Volume(v), veh/h	38	0	43	10	0	0	30	592	619	6	620	648
Grp Sat Flow(s),veh/h/ln	1271	0	1204	1368	1610	0	1485	1482	1551	1485	1482	1550
Q Serve(g_s), s	4.0	0.0	4.8	1.0	0.0	0.0	0.4	14.9	14.9	0.1	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	4.8	5.8	0.0	0.0	0.4	14.9	14.9	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.03	1.00		0.03
Lane Grp Cap(c), veh/h	137	0	81	96	108	0	441	1244	1302	395	1219	1275
V/C Ratio(X)	0.28	0.00	0.53	0.10	0.00	0.00	0.07	0.48	0.48	0.02	0.51	0.51
Avail Cap(c_a), veh/h	324	0	258	297	345	0	511	1244	1302	490	1219	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.81	0.81	0.81	0.91	0.91	0.91
Uniform Delay (d), s/veh	62.8	0.0	63.1	66.0	0.0	0.0	1.6	3.0	3.0	2.6	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	5.3	0.5	0.0	0.0	0.1	1.1	1.0	0.0	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	0.0	2.9	0.7	0.0	0.0	0.2	6.5	6.7	0.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.8	0.0	68.4	66.4	0.0	0.0	1.7	4.1	4.0	2.6	1.4	1.3
LnGrp LOS	E	A	E	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		81			10			1241			1274	
Approach Delay, s/veh		66.3			66.4			4.0			1.4	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	121.5			13.4	7.4	119.1		13.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	88.0	88.0		30.0	10.0	88.0		30.0				
Max Q Clear Time (g_c+1), s	16.9			6.8	2.4	2.0		7.8				
Green Ext Time (p_c), s	0.0	11.6		0.3	0.0	12.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	4.9
HCM 6th LOS	A

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗		↖	↑	↗
Traffic Volume (veh/h)	19	613	419	14	807	8	796	121	67	123	206	47
Future Volume (veh/h)	19	613	419	14	807	8	796	121	67	123	206	47
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	1510	1510	1510	1497	1497	1497	1484	1484	1484	1535	1535	1535
Adj Flow Rate, veh/h	21	689	0	16	907	9	894	136	75	138	231	53
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	8	8	8	9	9	9	10	10	10	6	6	6
Cap, veh/h	23	620		19	604	6	384	292	161	157	250	212
Arrive On Green	0.02	0.41	0.00	0.01	0.41	0.41	0.27	0.33	0.33	0.11	0.16	0.16
Sat Flow, veh/h	1438	1510	1279	1426	1480	15	1414	899	496	1462	1535	1301
Grp Volume(v), veh/h	21	689	0	16	0	916	894	0	211	138	231	53
Grp Sat Flow(s),veh/h/ln	1438	1510	1279	1426	0	1494	1414	0	1395	1462	1535	1301
Q Serve(g_s), s	2.1	58.8	0.0	1.6	0.0	58.4	38.9	0.0	17.2	13.3	21.2	5.1
Cycle Q Clear(g_c), s	2.1	58.8	0.0	1.6	0.0	58.4	38.9	0.0	17.2	13.3	21.2	5.1
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	23	620		19	0	610	384	0	454	157	250	212
V/C Ratio(X)	0.90	1.11		0.85	0.00	1.50	2.33	0.00	0.47	0.88	0.92	0.25
Avail Cap(c_a), veh/h	40	620		40	0	610	384	0	454	217	257	218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.3	42.2	0.0	70.5	0.0	42.4	52.1	0.0	38.4	62.9	59.0	52.3
Incr Delay (d2), s/veh	60.3	70.4	0.0	50.6	0.0	234.6	605.2	0.0	0.6	23.7	35.5	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(95%),veh/ln	2.1	46.1	0.0	1.5	0.0	92.6	124.5	0.0	9.9	10.0	16.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.6	112.5	0.0	121.1	0.0	277.0	657.4	0.0	39.0	86.6	94.5	52.7
LnGrp LOS	F	F		F	A	F	F	A	D	F	F	D
Approach Vol, veh/h		710			932			1105			422	
Approach Delay, s/veh		113.0			274.3			539.3			86.7	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	64.2	44.0	28.4	6.9	63.8	20.8	51.6				
Change Period (Y+Rc), s	4.6	5.4	5.1	5.1	4.6	* 5.4	5.4	* 5.1				
Max Green Setting (Gmax), s	4.0	57.9	38.9	24.0	4.0	* 58	21.3	* 42				
Max Q Clear Time (g_c+1), s	13.6	60.8	40.9	23.2	4.1	60.4	15.3	19.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	305.6
HCM 6th LOS	F

Notes

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

HCM 6th Signalized Intersection Summary

216: SR 3 & Imperial Way

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	10	70	39	11	84	200	712	109	340	478	74
Future Volume (veh/h)	161	10	70	39	11	84	200	712	109	340	478	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1020	1020	1020	1610	1610	1610	1547	1547	1547	1510	1510	1510
Adj Flow Rate, veh/h	169	11	74	41	12	0	211	749	115	358	503	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	47	47	47	0	0	0	5	5	5	8	8	8
Cap, veh/h	247	17	117	208	92		449	624	529	384	783	663
Arrive On Green	0.14	0.15	0.15	0.04	0.06	0.00	0.10	0.40	0.40	0.22	0.52	0.52
Sat Flow, veh/h	971	114	768	1533	1610	1364	1474	1547	1311	1438	1510	1279
Grp Volume(v), veh/h	169	0	85	41	12	0	211	749	115	358	503	78
Grp Sat Flow(s),veh/h/ln	971	0	882	1533	1610	1364	1474	1547	1311	1438	1510	1279
Q Serve(g_s), s	14.0	0.0	9.3	2.6	0.7	0.0	8.5	41.5	5.9	20.0	24.8	3.2
Cycle Q Clear(g_c), s	14.0	0.0	9.3	2.6	0.7	0.0	8.5	41.5	5.9	20.0	24.8	3.2
Prop In Lane	1.00		0.87	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	0	135	208	92		449	624	529	384	783	663
V/C Ratio(X)	0.68	0.00	0.63	0.20	0.13		0.47	1.20	0.22	0.93	0.64	0.12
Avail Cap(c_a), veh/h	247	0	231	236	297		501	624	529	440	788	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	40.8	43.1	46.1	0.0	15.7	30.7	20.1	30.0	17.9	12.7
Incr Delay (d2), s/veh	7.5	0.0	4.8	0.5	0.6	0.0	0.8	104.9	0.2	24.9	1.7	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(95%),veh/lr	8.3	0.0	4.0	1.8	0.6	0.0	5.2	48.2	3.3	10.9	13.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	0.0	45.6	43.5	46.7	0.0	16.5	135.6	20.3	54.9	19.6	12.8
LnGrp LOS	D	A	D	D	D		B	F	C	D	B	B
Approach Vol, veh/h		254			53			1075			939	
Approach Delay, s/veh		46.3			44.2			99.9			32.5	
Approach LOS		D			D			F			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	47.5	8.1	20.2	15.2	59.3	18.0	10.4				
Change Period (Y+Rc), s	4.5	6.0	4.0	4.5	4.5	6.0	4.0	4.5				
Max Green Setting (Gmax), s	26.5	41.5	6.0	27.0	14.3	53.7	14.0	19.0				
Max Q Clear Time (g_c+Q), s	22.0	43.5	4.6	11.3	10.5	26.8	16.0	2.7				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.4	0.2	3.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	65.5
HCM 6th LOS	E

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	2	137	26	6	82	13	24	6	7	14	20	13
Future Volume (veh/h)	2	137	26	6	82	13	24	6	7	14	20	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1522	1522	1522	1484	1484	1484	1472	1472	1472	1547	1547	1547
Adj Flow Rate, veh/h	3	180	34	8	108	17	32	8	9	18	26	17
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	7	7	7	10	10	10	11	11	11	5	5	5
Cap, veh/h	191	334	63	208	327	50	529	117	76	307	263	128
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	9	1237	231	42	1210	183	702	369	241	211	830	402
Grp Volume(v), veh/h	217	0	0	133	0	0	49	0	0	61	0	0
Grp Sat Flow(s),veh/h/ln	1477	0	0	1435	0	0	1311	0	0	1444	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	0.0	1.4	0.0	0.0	0.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.01		0.16	0.06		0.13	0.65		0.18	0.30		0.28
Lane Grp Cap(c), veh/h	588	0	0	585	0	0	723	0	0	698	0	0
V/C Ratio(X)	0.37	0.00	0.00	0.23	0.00	0.00	0.07	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	2547	0	0	2473	0	0	2376	0	0	2515	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	5.7	0.0	0.0	4.7	0.0	0.0	4.7	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	0.0	0.0	5.9	0.0	0.0	4.7	0.0	0.0	4.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		217			133			49			61	
Approach Delay, s/veh		6.4			5.9			4.7			4.8	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.1		9.2		10.1		9.2				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		31.0		31.0		31.0				
Max Q Clear Time (g_c+I1), s		2.5		4.4		2.6		3.4				
Green Ext Time (p_c), s		0.2		1.4		0.3		0.8				
Intersection Summary												
HCM 6th Ctrl Delay					5.9							
HCM 6th LOS					A							

MOVEMENT SUMMARY

Site: 328 [SR 3 & Ariport Rd (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h		veh/h	%	v/c	sec		veh	ft				mph
South: SR 3															
8	T1	All MCs	773	8.0	773	8.0	0.903	14.4	LOS D	17.4	462.8	1.00	0.97	1.41	33.1
18	R2	All MCs	145	8.0	145	8.0	0.903	14.1	LOS D	17.4	462.8	1.00	0.97	1.41	26.8
Approach			918	8.0	918	8.0	0.903	14.4	LOS B	17.4	462.8	1.00	0.97	1.41	31.9
East: Ariport Rd															
1	L2	All MCs	73	7.0	73	7.0	0.335	9.5	LOS A	2.2	58.9	0.85	0.75	0.85	27.2
16	R2	All MCs	131	7.0	131	7.0	0.335	5.5	LOS A	2.2	58.9	0.85	0.75	0.85	27.5
Approach			204	7.0	204	7.0	0.335	6.9	LOS A	2.2	58.9	0.85	0.75	0.85	27.4
North: SR 3															
7	L2	All MCs	383	8.0	383	8.0	1.285	142.5	LOS F	158.7	4222.1	1.00	2.03	2.86	10.9
4	T1	All MCs	1236	8.0	1236	8.0	1.285	136.7	LOS F	158.7	4222.1	1.00	2.03	2.86	11.9
Approach			1619	8.0	1619	8.0	1.285	138.1	LOS F	158.7	4222.1	1.00	2.03	2.86	11.6
All Vehicles			2741	7.9	2741	7.9	1.285	86.9	LOS F	158.7	4222.1	0.99	1.58	2.23	15.6

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:56:18 PM

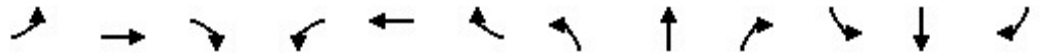
Project: C:\Users\Daniel Hodun\TSI Dropbox\Daniel Hodun\TSI Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Baseline + Alt 1.sip9

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑		↑		↑	↑	↑	↑
Traffic Volume (veh/h)	0	542	481	511	626	0	99	0	291	922	298	12
Future Volume (veh/h)	0	542	481	511	626	0	99	0	291	922	298	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1560	1560	1560	1560	0	1535	0	1535	1560	1560	1560
Adj Flow Rate, veh/h	0	553	491	521	639	0	101	0	0	622	750	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	4	4	4	4	0	6	0	6	4	4	4
Cap, veh/h	0	872	386	555	1531	0	0	0		629	660	
Arrive On Green	0.00	0.29	0.29	0.26	0.69	0.00	0.00	0.00	0.00	0.42	0.42	0.00
Sat Flow, veh/h	0	3042	1311	2882	3042	0		0		1485	1560	1322
Grp Volume(v), veh/h	0	553	491	521	639	0		0.0		622	750	0
Grp Sat Flow(s),veh/h/ln	0	1482	1311	1441	1482	0				1485	1560	1322
Q Serve(g_s), s	0.0	24.3	44.1	26.6	14.2	0.0				62.3	63.5	0.0
Cycle Q Clear(g_c), s	0.0	24.3	44.1	26.6	14.2	0.0				62.3	63.5	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	872	386	555	1531	0				629	660	
V/C Ratio(X)	0.00	0.63	1.27	0.94	0.42	0.00				0.99	1.14	
Avail Cap(c_a), veh/h	0	872	386	567	1531	0				629	660	
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.65	0.65	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	45.9	52.9	54.9	13.6	0.0				42.9	43.3	0.0
Incr Delay (d2), s/veh	0.0	3.5	141.7	17.6	0.5	0.0				33.0	78.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	14.4	44.1	14.9	6.9	0.0				36.8	53.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	49.4	194.6	72.6	14.1	0.0				75.9	122.1	0.0
LnGrp LOS	A	D	F	E	B	A				E	F	
Approach Vol, veh/h		1044			1160							1372
Approach Delay, s/veh		117.7			40.4							101.2
Approach LOS		F			D							F
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			33.4	48.6		68.0		82.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			29.5	25.5		63.5		59.5				
Max Q Clear Time (g_c+I1), s			28.6	46.1		65.5		16.2				
Green Ext Time (p_c), s			0.3	0.0		0.0		5.9				

Intersection Summary

HCM 6th Ctrl Delay	86.3
HCM 6th LOS	F

Notes

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

HCM 6th Signalized Intersection Summary

3: SR 3 NB Off-Ramp/SR 3 NB On-Ramp & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗		↖	↗			
Traffic Volume (veh/h)	84	1628	0	0	982	832	232	1	165	0	0	0
Future Volume (veh/h)	84	1628	0	0	982	832	232	1	165	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1572	1572	1597	1597	1597			
Adj Flow Rate, veh/h	88	1696	0	0	1023	0	242	1	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	3	3	1	1	1			
Cap, veh/h	612	2389	0	0	1220		212	1				
Arrive On Green	0.70	1.00	0.00	0.00	0.13	0.00	0.14	0.14	0.00			
Sat Flow, veh/h	1509	3091	0	0	3066	1332	1515	6	1354			
Grp Volume(v), veh/h	88	1696	0	0	1023	0	243	0	0			
Grp Sat Flow(s),veh/h/ln	1509	1506	0	0	1494	1332	1522	0	1354			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	50.1	0.0	21.0	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	50.1	0.0	21.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	612	2389	0	0	1220		213	0				
V/C Ratio(X)	0.14	0.71	0.00	0.00	0.84		1.14	0.00				
Avail Cap(c_a), veh/h	612	2389	0	0	2012		213	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(l)	0.09	0.09	0.00	0.00	0.58	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.8	0.0	0.0	0.0	60.1	0.0	64.5	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	4.2	0.0	104.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	1.4	0.1	0.0	0.0	26.6	0.0	21.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.2	0.0	0.0	64.2	0.0	169.2	0.0	0.0			
LnGrp LOS	B	A	A	A	E		F	A				
Approach Vol, veh/h		1784			1023			243				
Approach Delay, s/veh		0.8			64.2			169.2				
Approach LOS		A			E			F				
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				124.0		26.0	57.7	66.3				
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s				119.0		21.0	13.0	101.0				
Max Q Clear Time (g_c+I1), s				2.0		23.0	2.0	52.1				
Green Ext Time (p_c), s				25.4		0.0	0.1	9.2				

Intersection Summary

HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

4: Shorewood Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1560	150	6	1565	50	65	4	25	44	3	50
Future Volume (veh/h)	84	1560	150	6	1565	50	65	4	25	44	3	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1547	1547	1547	1560	1560	1560
Adj Flow Rate, veh/h	88	1625	0	6	1630	52	68	4	26	46	3	52
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	4	4	4
Cap, veh/h	258	1757		375	2211	962	115	11	31	175	10	159
Arrive On Green	0.05	0.78	0.00	0.37	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1509	3011	1343	1509	3011	1310	604	87	250	1051	80	1296
Grp Volume(v), veh/h	88	1625	0	6	1630	52	98	0	0	49	0	52
Grp Sat Flow(s),veh/h/ln	1509	1506	1343	1509	1506	1310	941	0	0	1131	0	1296
Q Serve(g_s), s	4.1	64.2	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	5.5
Cycle Q Clear(g_c), s	4.1	64.2	0.0	0.0	0.0	0.0	16.2	0.0	0.0	6.1	0.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	0.69		0.27	0.94		1.00
Lane Grp Cap(c), veh/h	258	1757		375	2211	962	156	0	0	185	0	159
V/C Ratio(X)	0.34	0.92		0.02	0.74	0.05	0.63	0.00	0.00	0.26	0.00	0.33
Avail Cap(c_a), veh/h	298	2118		375	2211	962	196	0	0	227	0	199
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.52	0.52	0.00	0.57	0.57	0.57	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	14.2	0.0	26.4	0.0	0.0	66.9	0.0	0.0	60.4	0.0	60.2
Incr Delay (d2), s/veh	0.4	5.6	0.0	0.0	1.3	0.1	4.1	0.0	0.0	0.8	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	21.1	0.0	0.2	0.7	0.0	7.1	0.0	0.0	3.2	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	19.8	0.0	26.4	1.3	0.1	71.0	0.0	0.0	61.1	0.0	61.3
LnGrp LOS	B	B		C	A	A	E	A	A	E	A	E
Approach Vol, veh/h		1713			1688			98			101	
Approach Delay, s/veh		19.6			1.3			71.0			61.2	
Approach LOS		B			A			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	33.6	93.0		23.4	11.0	115.6				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		23.0	6.0*	1.1E2		23.0	10.0	101.5				
Max Q Clear Time (g_c+I1), s		18.2	2.0	66.2		8.1	6.1	2.0				
Green Ext Time (p_c), s		0.2	0.0	21.3		0.3	0.1	30.7				

Intersection Summary

HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1512	81	109	1653	0	121	0	92	2	0	0
Future Volume (veh/h)	1	1512	81	109	1653	0	121	0	92	2	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1572	1572	1572	1610	1610	1610
Adj Flow Rate, veh/h	1	1559	84	112	1704	0	125	0	95	2	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	0	0	0
Cap, veh/h	428	2214	966	254	1675	0	201	0	214	76	0	0
Arrive On Green	0.31	0.98	0.98	0.12	1.00	0.00	0.10	0.00	0.10	0.10	0.00	0.00
Sat Flow, veh/h	1509	3011	1315	1509	3091	0	1470	0	1317	272	0	0
Grp Volume(v), veh/h	1	1559	84	112	1704	0	125	0	95	2	0	0
Grp Sat Flow(s),veh/h/ln	1509	1506	1315	1509	1506	0	1470	0	1317	272	0	0
Q Serve(g_s), s	0.0	5.6	0.2	5.7	83.4	0.0	0.0	0.0	9.8	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.6	0.2	5.7	83.4	0.0	12.3	0.0	9.8	12.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	428	2214	966	254	1675	0	201	0	214	76	0	0
V/C Ratio(X)	0.00	0.70	0.09	0.44	1.02	0.00	0.62	0.00	0.44	0.03	0.00	0.00
Avail Cap(c_a), veh/h	428	2214	966	277	2098	0	279	0	288	150	0	0
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	0.68	0.68	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.5	0.5	0.4	17.2	0.0	0.0	65.8	0.0	56.8	71.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.1	0.8	22.7	0.0	3.2	0.0	1.4	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.7	0.2	3.4	8.5	0.0	8.5	0.0	6.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	1.8	0.6	18.1	22.7	0.0	68.9	0.0	58.3	72.0	0.0	0.0
LnGrp LOS	C	A	A	B	F	A	E	A	E	E	A	A
Approach Vol, veh/h		1644			1816			220				2
Approach Delay, s/veh		1.7			22.4			64.3				72.0
Approach LOS		A			C			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.6	32.6	96.9		20.6	13.2	116.3				
Change Period (Y+Rc), s		5.0	5.5	* 5.5		5.0	5.0	5.5				
Max Green Setting (Gmax), s		24.0	6.0	* 1E2		24.0	11.0	99.5				
Max Q Clear Time (g_c+I1), s		14.3	2.0	85.4		14.6	7.7	7.6				
Green Ext Time (p_c), s		0.7	0.0	13.9		0.0	0.1	27.9				

Intersection Summary

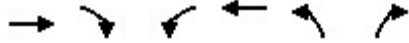
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	1596	63	91	1630	51	88
Future Volume (veh/h)	1596	63	91	1630	51	88
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1610	1610
Adj Flow Rate, veh/h	1716	68	98	1753	55	95
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2345	1018	314	2564	125	165
Arrive On Green	1.00	1.00	0.04	0.85	0.08	0.08
Sat Flow, veh/h	3091	1307	1509	3091	1533	1364
Grp Volume(v), veh/h	1716	68	98	1753	55	95
Grp Sat Flow(s),veh/h/ln	1506	1307	1509	1506	1533	1364
Q Serve(g_s), s	0.0	0.0	1.8	31.0	5.1	9.9
Cycle Q Clear(g_c), s	0.0	0.0	1.8	31.0	5.1	9.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2345	1018	314	2564	125	165
V/C Ratio(X)	0.73	0.07	0.31	0.68	0.44	0.57
Avail Cap(c_a), veh/h	2345	1018	366	2564	348	363
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.60	0.60	0.64	0.64	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	2.3	4.0	65.6	62.3
Incr Delay (d2), s/veh	1.2	0.1	0.4	1.0	2.4	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.7	0.0	0.8	10.2	3.8	6.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	1.2	0.1	2.7	4.9	68.0	65.4
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h	1784			1851	150	
Approach Delay, s/veh	1.2			4.8	66.3	
Approach LOS	A			A	E	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			10.9	121.8	17.3	132.7
Change Period (Y+Rc), s			5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s			11.0	90.0	34.0	106.0
Max Q Clear Time (g_c+I1), s			3.8	2.0	11.9	33.0
Green Ext Time (p_c), s			0.1	33.7	0.4	32.0
Intersection Summary						
HCM 6th Ctrl Delay			5.5			
HCM 6th LOS			A			

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1592	124	301	1600	2	73	1	290	5	4	2
Future Volume (veh/h)	1	1592	124	301	1600	2	73	1	290	5	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1610	1610	1610
Adj Flow Rate, veh/h	1	1676	0	317	1684	2	77	1	13	5	4	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	0	0	0
Cap, veh/h	2	1683		371	2465	3	141	1	146	43	27	8
Arrive On Green	0.00	0.18	0.00	0.49	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1521	3035	1354	1509	3086	4	848	14	1335	76	246	72
Grp Volume(v), veh/h	1	1676	0	317	821	865	78	0	13	11	0	0
Grp Sat Flow(s),veh/h/ln	1521	1518	1354	1509	1506	1584	862	0	1335	394	0	0
Q Serve(g_s), s	0.1	82.7	0.0	27.6	0.0	0.0	0.0	0.0	1.3	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	82.7	0.0	27.6	0.0	0.0	14.5	0.0	1.3	14.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.99		1.00	0.45		0.18
Lane Grp Cap(c), veh/h	2	1683		371	1203	1265	142	0	146	78	0	0
V/C Ratio(X)	0.40	1.00		0.85	0.68	0.68	0.55	0.00	0.09	0.14	0.00	0.00
Avail Cap(c_a), veh/h	76	1683		371	1203	1265	171	0	174	108	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.00	0.19	0.19	0.19	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	74.9	61.1	0.0	35.8	0.0	0.0	65.9	0.0	60.1	60.4	0.0	0.0
Incr Delay (d2), s/veh	51.4	15.7	0.0	3.9	0.6	0.6	3.3	0.0	0.3	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.1	45.1	0.0	10.7	0.4	0.4	5.5	0.0	0.8	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.3	76.8	0.0	39.7	0.6	0.6	69.2	0.0	60.3	61.2	0.0	0.0
LnGrp LOS	F	E		D	A	A	E	A	E	E	A	A
Approach Vol, veh/h		1677			2003			91			11	
Approach Delay, s/veh		76.8			6.8			67.9			61.2	
Approach LOS		E			A			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.9	41.4	87.7		20.9	4.7	124.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	33.8	83.2		19.5	7.5	109.5				
Max Q Clear Time (g_c+I1), s		16.5	29.6	84.7		16.6	2.1	2.0				
Green Ext Time (p_c), s		0.1	0.4	0.0		0.0	0.0	22.5				

Intersection Summary

HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (veh/h)	196	1594	68	33	1657	96	76	38	67	102	30	150
Future Volume (veh/h)	196	1594	68	33	1657	96	76	38	67	102	30	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	204	1660	71	34	1726	100	79	40	70	106	31	156
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	2	2	2
Cap, veh/h	221	1568	680	184	1486	659	107	147	123	284	37	185
Arrive On Green	0.29	1.00	1.00	0.12	0.49	0.49	0.04	0.09	0.09	0.11	0.16	0.16
Sat Flow, veh/h	1521	3035	1317	1509	3011	1336	1533	1610	1346	1509	226	1137
Grp Volume(v), veh/h	204	1660	71	34	1726	100	79	40	70	106	0	187
Grp Sat Flow(s),veh/h/ln	1521	1518	1317	1509	1506	1336	1533	1610	1346	1509	0	1363
Q Serve(g_s), s	19.5	77.5	0.0	3.0	74.0	6.1	2.9	3.5	7.5	0.0	0.0	20.0
Cycle Q Clear(g_c), s	19.5	77.5	0.0	3.0	74.0	6.1	2.9	3.5	7.5	0.0	0.0	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	221	1568	680	184	1486	659	107	147	123	284	0	222
V/C Ratio(X)	0.92	1.06	0.10	0.18	1.16	0.15	0.74	0.27	0.57	0.37	0.00	0.84
Avail Cap(c_a), veh/h	221	1578	685	184	1486	659	130	360	301	284	0	286
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.4	0.0	0.0	59.2	38.0	20.8	69.8	63.5	65.4	56.7	0.0	60.9
Incr Delay (d2), s/veh	13.8	30.4	0.1	0.5	80.7	0.5	23.0	1.0	4.1	0.8	0.0	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	9.4	9.0	0.0	2.1	60.1	3.7	6.6	2.7	4.9	6.7	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	30.4	0.1	59.6	118.7	21.3	92.8	64.5	69.5	57.5	0.0	77.0
LnGrp LOS	E	F	A	E	F	C	F	E	E	E	A	E
Approach Vol, veh/h		1935			1860			189			293	
Approach Delay, s/veh		33.0			112.4			78.2			70.0	
Approach LOS		C			F			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.6	20.2	24.5	82.7	11.8	30.9	28.3	79.0				
Change Period (Y+Rc), s	6.0	6.5	6.5	* 5	6.0	6.5	6.5	5.0				
Max Green Setting (Gmax), s	6.0	33.5	9.0	* 78	8.0	31.5	12.5	74.0				
Max Q Clear Time (g_c+1/2g), s	12.0	9.5	5.0	79.5	4.9	22.0	21.5	76.0				
Green Ext Time (p_c), s	0.1	0.4	0.0	0.0	0.1	0.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	72.1
HCM 6th LOS	E

Notes

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

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

07/01/2024

Intersection												
Int Delay, s/veh	45.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↕			↕	
Traffic Vol, veh/h	82	1627	17	53	1621	17	66	0	110	9	0	111
Future Vol, veh/h	82	1627	17	53	1621	17	66	0	110	9	0	111
Conflicting Peds, #/hr	5	0	10	10	0	5	10	0	10	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	2	2	2	0	0	0	2	2	2
Mvmt Flow	85	1677	18	55	1671	18	68	0	113	9	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1694	0	0	1705	0	0	2813	3661	859	2814	3670	860
Stage 1	-	-	-	-	-	-	1857	1857	-	1795	1795	-
Stage 2	-	-	-	-	-	-	956	1804	-	1019	1875	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.5	6.5	6.9	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.5	4	3.3	3.52	4.02	3.32
Pot Cap-1 Maneuver	377	-	-	369	-	-	~9	5	304	~8	5	299
Stage 1	-	-	-	-	-	-	78	125	-	83	131	-
Stage 2	-	-	-	-	-	-	281	132	-	254	119	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	376	-	-	366	-	-	~4	3	299	~4	3	296
Mov Cap-2 Maneuver	-	-	-	-	-	-	~29	20	-	31	26	-
Stage 1	-	-	-	-	-	-	~60	96	-	64	111	-
Stage 2	-	-	-	-	-	-	145	112	-	121	91	-

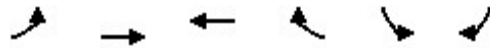
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.5			\$ 904.8			60.2		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	376	-	-	366	-	-	180
HCM Lane V/C Ratio	2.708	0.225	-	-	0.149	-	-	0.687
HCM Control Delay (s)	\$ 904.8	17.3	-	-	16.6	-	-	60.2
HCM Lane LOS	F	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	18.1	0.8	-	-	0.5	-	-	4.1

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

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

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶↶	↑	↶↶			↶↶
Traffic Volume (veh/h)	1115	0	659	49	0	1085
Future Volume (veh/h)	1115	0	659	49	0	1085
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1585	1585	1610	1610	0	1610
Adj Flow Rate, veh/h	1161	0	686	51	0	1130
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	0	0	0
Cap, veh/h	1604	1516	1074	80	0	0
Arrive On Green	0.55	0.00	0.74	0.74	0.00	0.00
Sat Flow, veh/h	2928	1585	2964	214	0	
Grp Volume(v), veh/h	1161	0	364	373	0.0	
Grp Sat Flow(s),veh/h/ln	1464	1585	1530	1569		
Q Serve(g_s), s	44.6	0.0	17.4	17.4		
Cycle Q Clear(g_c), s	44.6	0.0	17.4	17.4		
Prop In Lane	1.00			0.14		
Lane Grp Cap(c), veh/h	1604	1516	569	584		
V/C Ratio(X)	0.72	0.00	0.64	0.64		
Avail Cap(c_a), veh/h	1604	1516	569	584		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	25.4	0.0	14.2	14.3		
Incr Delay (d2), s/veh	1.7	0.0	2.6	2.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	22.0	0.0	7.5	7.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	0.0	16.8	16.8		
LnGrp LOS	C	A	B	B		
Approach Vol, veh/h		1161	737			
Approach Delay, s/veh		27.1	16.8			
Approach LOS		C	B			
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	88.7	61.3			150.0	
Change Period (Y+Rc), s	6.5	5.5			6.5	
Max Green Setting (Gmax), s	44.5	49.5			113.5	
Max Q Clear Time (g_c+I1), s	46.6	19.4			0.0	
Green Ext Time (p_c), s	0.0	6.0			0.0	
Intersection Summary						
HCM 6th Ctrl Delay			23.1			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

11: Wycoff Ave & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	464	6	121	771	36	5	63	47	2	64	15
Future Volume (veh/h)	32	464	6	121	771	36	5	63	47	2	64	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1610	1610	1610	1585	1585	1585	1610	1610	1610
Adj Flow Rate, veh/h	34	499	6	130	829	39	5	68	51	2	69	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, %	1	1	1	0	0	0	2	2	2	0	0	0
Cap, veh/h	596	1230	15	818	1205	57	27	83	60	26	125	28
Arrive On Green	0.06	1.00	1.00	0.08	1.00	1.00	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1521	1575	19	1533	1523	72	24	840	604	11	1264	287
Grp Volume(v), veh/h	34	0	505	130	0	868	124	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1593	1533	0	1595	1468	0	0	1563	0	0
Q Serve(g_s), s	0.6	0.0	0.0	2.6	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	2.6	0.0	0.0	12.5	0.0	0.0	8.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.04	0.04		0.41	0.02		0.18
Lane Grp Cap(c), veh/h	596	0	1245	818	0	1261	170	0	0	179	0	0
V/C Ratio(X)	0.06	0.00	0.41	0.16	0.00	0.69	0.73	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	682	0	1245	982	0	1261	250	0	0	263	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.34	0.00	0.34	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.6	0.0	0.0	2.5	0.0	0.0	66.5	0.0	0.0	64.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.0	0.0	1.1	5.9	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	0.0	0.6	1.2	0.0	0.7	8.7	0.0	0.0	6.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.7	0.0	1.0	2.6	0.0	1.1	72.4	0.0	0.0	66.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		539			998			124			87	
Approach Delay, s/veh		1.1			1.3			72.4			66.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.8	10.0	121.2		18.8	8.5	122.6				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		23.0	22.0	93.0		23.0	13.0	102.0				
Max Q Clear Time (g_c+I1), s		14.5	4.6	2.0		10.0	2.6	2.0				
Green Ext Time (p_c), s		0.4	0.3	4.0		0.3	0.0	9.6				
Intersection Summary												
HCM 6th Ctrl Delay				9.5								
HCM 6th LOS				A								

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	436	57	161	762	58	165	201	39	43	113	32
Future Volume (veh/h)	23	436	57	161	762	58	165	201	39	43	113	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	24	464	61	171	811	62	176	214	41	46	120	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	486	863	114	684	958	73	212	233	45	119	174	49
Arrive On Green	0.05	1.00	1.00	0.11	1.00	1.00	0.07	0.18	0.18	0.03	0.15	0.15
Sat Flow, veh/h	1521	1382	182	1521	1462	112	1521	1296	248	1521	1187	336
Grp Volume(v), veh/h	24	0	525	171	0	873	176	0	255	46	0	154
Grp Sat Flow(s),veh/h/ln	1521	0	1564	1521	0	1574	1521	0	1544	1521	0	1523
Q Serve(g_s), s	0.8	0.0	0.0	6.3	0.0	0.0	10.0	0.0	24.3	3.8	0.0	14.4
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.3	0.0	0.0	10.0	0.0	24.3	3.8	0.0	14.4
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.16	1.00		0.22
Lane Grp Cap(c), veh/h	486	0	977	684	0	1031	212	0	278	119	0	223
V/C Ratio(X)	0.05	0.00	0.54	0.25	0.00	0.85	0.83	0.00	0.92	0.39	0.00	0.69
Avail Cap(c_a), veh/h	549	0	977	701	0	1031	212	0	340	220	0	386
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.90	0.00	0.90	0.47	0.00	0.47	0.35	0.00	0.35	0.79	0.00	0.79
Uniform Delay (d), s/veh	9.1	0.0	0.0	7.6	0.0	0.0	56.9	0.0	60.4	53.3	0.0	60.8
Incr Delay (d2), s/veh	0.0	0.0	1.9	0.1	0.0	4.3	8.8	0.0	11.2	0.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.0	0.9	3.3	0.0	2.2	4.9	0.0	13.6	2.7	0.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	1.9	7.6	0.0	4.3	65.8	0.0	71.6	53.9	0.0	63.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	D	A	E
Approach Vol, veh/h		549		1044		431		200				
Approach Delay, s/veh		2.2		4.8		69.2		60.9				
Approach LOS		A		A		E		E				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	31.0	12.3	97.7	14.0	26.0	7.8	102.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	33.0	10.0	76.0	10.0	38.0	10.0	76.0				
Max Q Clear Time (g_c+15), s	15.0	26.3	8.3	2.0	12.0	16.4	2.8	2.0				
Green Ext Time (p_c), s	0.0	0.7	0.1	3.4	0.0	0.7	0.0	7.5				
Intersection Summary												
HCM 6th Ctrl Delay				21.7								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

13: N Montgomery Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	430	84	32	916	10	37	19	92	1	18	4
Future Volume (veh/h)	2	430	84	32	916	10	37	19	92	1	18	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.97		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1610	1610	1610	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	2	457	89	34	974	11	39	20	98	1	19	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	311	986	192	758	1249	14	65	32	112	27	167	34
Arrive On Green	0.01	1.00	1.00	0.03	0.79	0.79	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1521	1298	253	1533	1588	18	268	249	859	14	1282	259
Grp Volume(v), veh/h	2	0	546	34	0	985	157	0	0	24	0	0
Grp Sat Flow(s),veh/h/ln	1521	0	1551	1533	0	1606	1377	0	0	1555	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	50.7	12.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.7	0.0	50.7	16.8	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.01	0.25		0.62	0.04		0.17
Lane Grp Cap(c), veh/h	311	0	1178	758	0	1264	209	0	0	227	0	0
V/C Ratio(X)	0.01	0.00	0.46	0.04	0.00	0.78	0.75	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	398	0	1178	813	0	1264	386	0	0	427	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.79	0.00	0.79	0.40	0.00	0.40	0.87	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	3.0	0.0	8.8	64.0	0.0	0.0	57.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.0	0.0	2.0	3.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	0.0	0.6	0.3	0.0	20.8	9.9	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	0.0	1.0	3.0	0.0	10.8	67.5	0.0	0.0	57.8	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	E	A	A	E	A	A
Approach Vol, veh/h		548			1019			157				24
Approach Delay, s/veh		1.1			10.5			67.5				57.8
Approach LOS		A			B			E				E
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	8.5	117.9		23.5	4.5	122.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		39.0	10.0	89.0		39.0	9.0	90.0				
Max Q Clear Time (g_c+I1), s		18.8	2.7	2.0		4.0	2.0	52.7				
Green Ext Time (p_c), s		0.8	0.0	3.6		0.1	0.0	8.8				
Intersection Summary												
HCM 6th Ctrl Delay												13.3
HCM 6th LOS												B

HCM 6th Signalized Intersection Summary

14: Naval Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	285	73	217	676	122	207	204	144	14	55	18
Future Volume (veh/h)	108	285	73	217	676	122	207	204	144	14	55	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.91		0.94	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	120	317	81	241	751	136	230	227	160	16	61	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	179	555	142	474	795	667	405	239	168	85	80	26
Arrive On Green	0.06	0.45	0.45	0.10	0.50	0.50	0.22	0.28	0.28	0.02	0.07	0.07
Sat Flow, veh/h	1521	1224	313	1521	1597	1340	1533	854	602	1521	1098	360
Grp Volume(v), veh/h	120	0	398	241	751	136	230	0	387	16	0	81
Grp Sat Flow(s),veh/h/ln	1521	0	1537	1521	1597	1340	1533	0	1456	1521	0	1458
Q Serve(g_s), s	5.1	0.0	23.2	9.8	54.2	5.6	10.9	0.0	31.7	0.0	0.0	6.6
Cycle Q Clear(g_c), s	5.1	0.0	23.2	9.8	54.2	5.6	10.9	0.0	31.7	0.0	0.0	6.6
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.41	1.00		0.25
Lane Grp Cap(c), veh/h	179	0	696	474	795	667	405	0	407	85	0	107
V/C Ratio(X)	0.67	0.00	0.57	0.51	0.95	0.20	0.57	0.00	0.95	0.19	0.00	0.76
Avail Cap(c_a), veh/h	187	0	696	569	847	711	405	0	417	123	0	223
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	24.5	16.7	29.0	11.5	39.4	0.0	42.9	58.7	0.0	55.3
Incr Delay (d2), s/veh	9.1	0.0	1.3	1.0	18.6	0.2	2.1	0.0	31.3	1.3	0.0	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	13.6	6.3	32.5	3.9	10.3	0.0	21.3	0.9	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	0.0	25.8	17.7	47.5	11.6	41.5	0.0	74.3	60.0	0.0	67.8
LnGrp LOS	D	A	C	B	D	B	D	A	E	E	A	E
Approach Vol, veh/h		518			1128			617				97
Approach Delay, s/veh		28.3			36.8			62.0				66.5
Approach LOS		C			D			E				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	38.5	16.9	59.6	31.7	13.4	11.5	65.0				
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	5.0	34.8	19.9	52.2	21.3	18.6	7.6	64.5				
Max Q Clear Time (g_c+1/2g), s	12.0	33.7	11.8	25.2	12.9	8.6	7.1	56.2				
Green Ext Time (p_c), s	0.0	0.0	0.3	0.6	3.4	0.5	0.3	0.0	4.2			
Intersection Summary												
HCM 6th Ctrl Delay												42.8
HCM 6th LOS												D

HCM 6th Signalized Intersection Summary

16: Veneta Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	512	32	22	738	9	49	39	37	12	14	42
Future Volume (veh/h)	9	512	32	22	738	9	49	39	37	12	14	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.93		0.89	0.94		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	10	569	36	24	820	10	54	43	41	13	16	47
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	287	1040	855	481	1025	13	164	118	88	87	86	178
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	666	1597	1313	818	1574	19	416	544	405	113	395	824
Grp Volume(v), veh/h	10	569	36	24	0	830	138	0	0	76	0	0
Grp Sat Flow(s),veh/h/ln	666	1597	1313	818	0	1594	1365	0	0	1333	0	0
Q Serve(g_s), s	0.8	13.1	0.7	1.1	0.0	25.8	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	26.5	13.1	0.7	14.2	0.0	25.8	5.8	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.39		0.30	0.17		0.62
Lane Grp Cap(c), veh/h	287	1040	855	481	0	1038	369	0	0	350	0	0
V/C Ratio(X)	0.03	0.55	0.04	0.05	0.00	0.80	0.37	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	398	1305	1073	616	0	1302	483	0	0	462	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	18.3	6.4	4.2	10.3	0.0	8.6	23.1	0.0	0.0	22.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.6	0.1	0.2	0.0	5.5	2.3	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.2	7.1	0.3	0.4	0.0	13.1	3.8	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	8.0	4.3	10.4	0.0	14.1	25.3	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	B	C	A	A	C	A	A
Approach Vol, veh/h		615			854			138			76	
Approach Delay, s/veh		8.0			14.0			25.3			23.2	
Approach LOS		A			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		48.7		19.2		48.7		19.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		20.5		55.5		20.5				
Max Q Clear Time (g_c+I1), s		28.5		5.2		27.8		7.8				
Green Ext Time (p_c), s		10.6		0.7		16.5		1.3				
Intersection Summary												
HCM 6th Ctrl Delay											13.2	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

17: Warren Ave (SR 303) & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	245	16	185	456	100	167	553	14	87	432	117
Future Volume (veh/h)	280	245	16	185	456	100	167	553	14	87	432	117
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	1610	1597	1597	1597	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	298	261	17	197	485	106	178	588	15	93	460	124
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	1	1	1	2	2	2	3	3	3
Cap, veh/h	320	557	36	486	516	427	274	944	24	304	644	172
Arrive On Green	0.15	0.37	0.37	0.10	0.32	0.32	0.19	0.63	0.63	0.02	0.09	0.09
Sat Flow, veh/h	1533	1494	97	1521	1597	1322	1509	3000	76	1497	2328	623
Grp Volume(v), veh/h	298	0	278	197	485	106	178	295	308	93	294	290
Grp Sat Flow(s),veh/h/ln	1533	0	1591	1521	1597	1322	1509	1506	1571	1497	1494	1458
Q Serve(g_s), s	16.4	0.0	15.9	10.2	35.4	7.1	10.1	14.3	14.4	5.3	22.9	23.2
Cycle Q Clear(g_c), s	16.4	0.0	15.9	10.2	35.4	7.1	10.1	14.3	14.4	5.3	22.9	23.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.05	1.00		0.43
Lane Grp Cap(c), veh/h	320	0	594	486	516	427	274	474	494	304	413	403
V/C Ratio(X)	0.93	0.00	0.47	0.41	0.94	0.25	0.65	0.62	0.62	0.31	0.71	0.72
Avail Cap(c_a), veh/h	333	0	594	568	552	457	274	474	494	306	413	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(l)	0.86	0.00	0.86	0.27	0.27	0.27	0.96	0.96	0.96	0.69	0.69	0.69
Uniform Delay (d), s/veh	30.4	0.0	28.6	23.1	39.5	29.9	25.7	17.9	17.9	30.0	49.9	50.0
Incr Delay (d2), s/veh	28.7	0.0	0.6	0.1	8.9	0.1	5.5	5.8	5.6	0.5	7.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	3.0	0.0	10.0	5.4	18.5	3.6	6.3	7.7	7.9	3.7	14.3	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	0.0	29.2	23.2	48.4	30.0	31.2	23.7	23.5	30.4	56.9	57.4
LnGrp LOS	E	A	C	C	D	C	C	C	C	C	E	E
Approach Vol, veh/h		576			788			781			677	
Approach Delay, s/veh		44.6			39.6			25.3			53.5	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.4	42.3	17.0	49.3	16.0	37.7	23.0	43.3				
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	33.9	19.0	42.0	11.5	29.5	19.5	41.5					
Max Q Clear Time (g_c+11), s	16.4	12.2	17.9	12.1	25.2	18.4	37.4					
Green Ext Time (p_c), s	0.0	4.1	0.3	2.1	0.0	1.6	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary

18: Park Ave & 6th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (veh/h)	37	192	135	15	424	31	238	260	96	20	62	89
Future Volume (veh/h)	37	192	135	15	424	31	238	260	96	20	62	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.96		0.99	0.95		0.90	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	47	243	171	19	537	39	301	329	122	25	78	92
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	114	495	512	64	604	43	311	265	97	108	279	292
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	125	1180	1221	21	1439	102	527	591	217	107	623	652
Grp Volume(v), veh/h	290	0	171	595	0	0	752	0	0	195	0	0
Grp Sat Flow(s),veh/h/ln	1305	0	1221	1563	0	0	1335	0	0	1382	0	0
Q Serve(g_s), s	0.0	0.0	6.4	8.0	0.0	0.0	24.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	6.4	24.2	0.0	0.0	30.5	0.0	0.0	6.0	0.0	0.0
Prop In Lane	0.16		1.00	0.03		0.07	0.40		0.16	0.13		0.47
Lane Grp Cap(c), veh/h	609	0	512	710	0	0	673	0	0	679	0	0
V/C Ratio(X)	0.48	0.00	0.33	0.84	0.00	0.00	1.12	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	649	0	548	755	0	0	673	0	0	679	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	0.0	13.3	18.4	0.0	0.0	20.5	0.0	0.0	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.8	9.0	0.0	0.0	71.9	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(95%),veh/lr	5.7	0.0	3.2	14.8	0.0	0.0	34.6	0.0	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	14.1	27.4	0.0	0.0	92.3	0.0	0.0	12.5	0.0	0.0
LnGrp LOS	B	A	B	C	A	A	F	A	A	B	A	A
Approach Vol, veh/h		461			595			752			195	
Approach Delay, s/veh		14.8			27.4			92.3			12.5	
Approach LOS		B			C			F			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.0		33.0		35.0		33.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		30.5		30.5		30.5		30.5				
Max Q Clear Time (g_c+I1), s		32.5		10.8		8.0		26.2				
Green Ext Time (p_c), s		0.0		4.8		2.3		2.3				
Intersection Summary												
HCM 6th Ctrl Delay											47.5	
HCM 6th LOS											D	

Intersection

Intersection Delay, s/veh 19.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	78	218	62	51	307	28	58	93	75	23	58	54
Future Vol, veh/h	78	218	62	51	307	28	58	93	75	23	58	54
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	6	6	6
Mvmt Flow	92	256	73	60	361	33	68	109	88	27	68	64
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	18.5	25.4	14	15
HCM LOS	C	D	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	38%	0%	100%	0%	100%	0%	17%
Vol Thru, %	62%	0%	0%	78%	0%	92%	43%
Vol Right, %	0%	100%	0%	22%	0%	8%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	75	78	280	51	335	135
LT Vol	58	0	78	0	51	0	23
Through Vol	93	0	0	218	0	307	58
RT Vol	0	75	0	62	0	28	54
Lane Flow Rate	178	88	92	329	60	394	159
Geometry Grp	5	5	5	5	5	5	4b
Degree of Util (X)	0.386	0.169	0.191	0.624	0.124	0.751	0.345
Departure Headway (Hd)	7.822	6.906	7.495	6.823	7.428	6.856	7.826
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	518	478	527	482	528	459
Service Time	5.583	4.666	5.251	4.579	5.182	4.61	5.895
HCM Lane V/C Ratio	0.387	0.17	0.192	0.624	0.124	0.746	0.346
HCM Control Delay	15.5	11.1	12	20.3	11.2	27.6	15
HCM Lane LOS	C	B	B	C	B	D	B
HCM 95th-tile Q	1.8	0.6	0.7	4.2	0.4	6.5	1.5

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	226	24	91	620	178	248
Future Volume (veh/h)	226	24	91	620	178	248
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1597	1597	1547	1547	1585	1585
Adj Flow Rate, veh/h	254	27	102	697	200	279
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	5	5	2	2
Cap, veh/h	273	29	538	1119	381	531
Arrive On Green	0.20	0.20	0.05	0.72	0.64	0.64
Sat Flow, veh/h	1352	144	1474	1547	598	834
Grp Volume(v), veh/h	282	0	102	697	0	479
Grp Sat Flow(s),veh/h/ln	1501	0	1474	1547	0	1432
Q Serve(g_s), s	22.1	0.0	2.7	27.3	0.0	21.9
Cycle Q Clear(g_c), s	22.1	0.0	2.7	27.3	0.0	21.9
Prop In Lane	0.90	0.10	1.00			0.58
Lane Grp Cap(c), veh/h	303	0	538	1119	0	912
V/C Ratio(X)	0.93	0.00	0.19	0.62	0.00	0.53
Avail Cap(c_a), veh/h	319	0	657	1119	0	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.61	0.61	0.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	8.4	8.4	0.0	11.9
Incr Delay (d2), s/veh	31.6	0.0	0.1	1.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lt	6.4	0.0	1.5	12.7	0.0	11.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	78.6	0.0	8.5	10.0	0.0	14.0
LnGrp LOS	E	A	A	A	A	B
Approach Vol, veh/h	282			799	479	
Approach Delay, s/veh	78.6			9.8	14.0	
Approach LOS	E			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.3		28.7	10.3	81.0
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		85.5		25.5	15.5	65.5
Max Q Clear Time (g_c+l1), s		29.3		24.1	4.7	23.9
Green Ext Time (p_c), s		5.0		0.1	0.2	3.3

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑	↗		↕			↖	↗
Traffic Volume (veh/h)	467	484	2	0	514	123	11	7	3	143	4	355
Future Volume (veh/h)	467	484	2	0	514	123	11	7	3	143	4	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1597	1597	1610	1610	1610	1560	1560	1560
Adj Flow Rate, veh/h	497	515	2	0	547	131	12	7	3	152	4	378
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	1	1	0	0	0	4	4	4
Cap, veh/h	469	532	2	0	466	384	21	13	5	278	7	682
Arrive On Green	0.32	0.32	0.32	0.00	0.29	0.29	0.03	0.03	0.03	0.19	0.19	0.19
Sat Flow, veh/h	1448	1642	6	0	1597	1317	825	481	206	1449	38	1322
Grp Volume(v), veh/h	519	0	495	0	547	131	22	0	0	156	0	378
Grp Sat Flow(s),veh/h/ln	1513	0	1583	0	1597	1317	1513	0	0	1487	0	1322
Q Serve(g_s), s	38.9	0.0	36.9	0.0	35.0	9.4	1.7	0.0	0.0	11.4	0.0	23.0
Cycle Q Clear(g_c), s	38.9	0.0	36.9	0.0	35.0	9.4	1.7	0.0	0.0	11.4	0.0	23.0
Prop In Lane	0.96		0.00	0.00		1.00	0.55		0.14	0.97		1.00
Lane Grp Cap(c), veh/h	490	0	513	0	466	384	39	0	0	285	0	682
V/C Ratio(X)	1.06	0.00	0.96	0.00	1.17	0.34	0.56	0.00	0.00	0.55	0.00	0.55
Avail Cap(c_a), veh/h	490	0	513	0	466	384	76	0	0	285	0	682
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	0.00	0.90	0.90	1.00	0.00	0.00	0.63	0.00	0.63
Uniform Delay (d), s/veh	40.6	0.0	39.9	0.0	42.5	33.4	57.8	0.0	0.0	43.8	0.0	19.6
Incr Delay (d2), s/veh	57.4	0.0	31.0	0.0	97.2	2.2	16.5	0.0	0.0	3.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.1	0.0	25.8	0.0	37.8	5.9	1.5	0.0	0.0	7.2	0.0	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.9	0.0	70.9	0.0	139.7	35.6	74.3	0.0	0.0	46.8	0.0	21.0
LnGrp LOS	F	A	E	A	F	D	E	A	A	D	A	C
Approach Vol, veh/h		1014			678			22			534	
Approach Delay, s/veh		84.7			119.6			74.3			28.5	
Approach LOS		F			F			E			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.1		43.9		28.0		40.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		6.0		36.0		23.0		35.0				
Max Q Clear Time (g_c+I1), s		3.7		40.9		25.0		37.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					81.8							
HCM 6th LOS					F							

HCM 6th Signalized Intersection Summary
 22: Warren Ave (SR 303) & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↘			↖↗		↖	↖↗		↖	↖↗	↗
Traffic Volume (veh/h)	664	607	16	0	465	285	35	936	8	77	637	547
Future Volume (veh/h)	664	607	16	0	465	285	35	936	8	77	637	547
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	0	1572	1572	1597	1597	1597	1560	1560	1560
Adj Flow Rate, veh/h	678	619	16	0	474	291	36	955	8	79	650	558
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	0	3	3	1	1	1	4	4	4
Cap, veh/h	598	743	19	0	415	253	164	981	8	142	995	710
Arrive On Green	0.34	0.81	0.81	0.00	0.23	0.23	0.07	0.64	0.64	0.11	0.67	0.67
Sat Flow, veh/h	2928	1538	40	0	1856	1086	1521	3084	26	1485	2964	1311
Grp Volume(v), veh/h	678	0	635	0	398	367	36	470	493	79	650	558
Grp Sat Flow(s),veh/h/ln	1464	0	1577	0	1494	1370	1521	1518	1593	1485	1482	1311
Q Serve(g_s), s	24.5	0.0	28.4	0.0	28.0	28.0	2.0	35.5	35.5	0.7	15.4	13.7
Cycle Q Clear(g_c), s	24.5	0.0	28.4	0.0	28.0	28.0	2.0	35.5	35.5	0.7	15.4	13.7
Prop In Lane	1.00		0.03	0.00		0.79	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	598	0	762	0	349	320	164	483	506	142	995	710
V/C Ratio(X)	1.13	0.00	0.83	0.00	1.14	1.15	0.22	0.97	0.97	0.56	0.65	0.79
Avail Cap(c_a), veh/h	598	0	776	0	349	320	187	487	511	142	995	710
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.52	0.52	0.63	0.63	0.63	0.34	0.34	0.34
Uniform Delay (d), s/veh	39.5	0.0	8.7	0.0	46.0	46.0	31.3	21.4	21.4	50.9	15.6	3.4
Incr Delay (d2), s/veh	79.6	0.0	7.6	0.0	80.8	84.6	0.5	26.7	25.9	1.9	1.1	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	22.0	0.0	9.5	0.0	25.0	23.7	1.4	15.8	16.4	3.6	5.4	24.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	0.0	16.4	0.0	126.8	130.6	31.8	48.0	47.3	52.7	16.8	6.4
LnGrp LOS	F	A	B	A	F	F	C	D	D	D	B	A
Approach Vol, veh/h		1313			765			999			1287	
Approach Delay, s/veh		69.5			128.6			47.1			14.5	
Approach LOS		E			F			D			B	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.8	43.7		64.5	9.7	45.8	31.0	33.5				
Change Period (Y+Rc), s	5.5	5.5		* 6.5	5.5	5.5	6.5	5.5				
Max Green Setting (Gmax), s	6.0	38.5		* 59	6.0	38.5	24.5	28.0				
Max Q Clear Time (g_c+1/2), s	12.5	37.5		30.4	4.0	17.4	26.5	30.0				
Green Ext Time (p_c), s	0.1	0.7		4.8	0.0	8.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	58.5
HCM 6th LOS	E

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Volume (veh/h)	246	40	25	5	19	10	0	1891	3	0	1195	313
Future Volume (veh/h)	246	40	25	5	19	10	0	1891	3	0	1195	313
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1610	1610	1610	0	1597	1597	0	1560	1560
Adj Flow Rate, veh/h	256	42	26	5	20	10	0	1970	3	0	1245	326
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	0	0	0	1	1	0	4	4
Cap, veh/h	330	45	28	70	240	110	0	2095	3	0	1569	404
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	1.00	1.00	0.00	1.00	1.00
Sat Flow, veh/h	1099	180	112	141	955	439	0	3189	5	0	2407	599
Grp Volume(v), veh/h	324	0	0	35	0	0	0	961	1012	0	784	787
Grp Sat Flow(s),veh/h/ln	1391	0	0	1535	0	0	0	1518	1597	0	1482	1446
Q Serve(g_s), s	25.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	27.3	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.79		0.08	0.14		0.29	0.00		0.00	0.00		0.41
Lane Grp Cap(c), veh/h	403	0	0	420	0	0	0	1023	1076	0	999	974
V/C Ratio(X)	0.80	0.00	0.00	0.08	0.00	0.00	0.00	0.94	0.94	0.00	0.79	0.81
Avail Cap(c_a), veh/h	442	0	0	461	0	0	0	1023	1076	0	999	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09	0.09	0.00	0.52	0.52
Uniform Delay (d), s/veh	43.8	0.0	0.0	34.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	10.0	0.0	0.0	0.1	0.0	0.0	0.0	2.3	2.2	0.0	3.3	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lt	5.9	0.0	0.0	1.5	0.0	0.0	0.0	1.0	1.1	0.0	1.7	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	0.0	34.5	0.0	0.0	0.0	2.3	2.2	0.0	3.3	3.9
LnGrp LOS	D	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		324			35			1973			1571	
Approach Delay, s/veh		53.7			34.5			2.2			3.6	
Approach LOS		D			C			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		85.4		34.6		85.4		34.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		77.5		33.5		77.5		33.5				
Max Q Clear Time (g_c+I1), s		2.0		29.3		2.0		4.1				
Green Ext Time (p_c), s		50.2		0.9		55.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				7.3								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↖	↑↑	↑↑	↖
Traffic Volume (veh/h)	88	46	89	2101	1482	78
Future Volume (veh/h)	88	46	89	2101	1482	78
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1547	1547	1585	1585	1547	1547
Adj Flow Rate, veh/h	69	71	92	2166	1528	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	2	2	5	5
Cap, veh/h	107	96	110	2566	2181	
Arrive On Green	0.07	0.07	0.15	1.00	0.74	0.00
Sat Flow, veh/h	1474	1311	1509	3091	3017	1311
Grp Volume(v), veh/h	69	71	92	2166	1528	0
Grp Sat Flow(s),veh/h/ln	1474	1311	1509	1506	1470	1311
Q Serve(g_s), s	5.5	6.4	7.1	0.0	33.5	0.0
Cycle Q Clear(g_c), s	5.5	6.4	7.1	0.0	33.5	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	107	96	110	2566	2181	
V/C Ratio(X)	0.64	0.74	0.84	0.84	0.70	
Avail Cap(c_a), veh/h	325	290	132	2566	2181	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	54.1	54.5	50.6	0.0	8.3	0.0
Incr Delay (d2), s/veh	7.5	12.8	4.0	0.3	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	4.4	3.4	0.2	14.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	61.6	67.3	54.6	0.3	10.2	0.0
LnGrp LOS	E	E	D	A	B	
Approach Vol, veh/h	140			2258	1528	
Approach Delay, s/veh	64.5			2.6	10.2	
Approach LOS	E			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.2	13.2	93.5		106.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		26.5	10.5	69.5		84.5
Max Q Clear Time (g_c+I1), s		8.4	9.1	35.5		2.0
Green Ext Time (p_c), s		0.5	0.0	21.3		60.5

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	65	147	156	73	84	247	1785	155	238	1054	39
Future Volume (veh/h)	54	65	147	156	73	84	247	1785	155	238	1054	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	56	67	9	161	75	5	255	1840	108	245	1087	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	3	3	3
Cap, veh/h	143	122	102	155	123	103	566	1588	708	316	1211	42
Arrive On Green	0.04	0.08	0.08	0.04	0.08	0.08	0.33	0.53	0.53	0.21	0.41	0.41
Sat Flow, veh/h	1509	1585	1327	1521	1597	1338	1509	3011	1342	1497	2944	103
Grp Volume(v), veh/h	56	67	9	161	75	5	255	1840	108	245	551	574
Grp Sat Flow(s),veh/h/ln	1509	1585	1327	1521	1597	1338	1509	1506	1342	1497	1494	1553
Q Serve(g_s), s	5.5	6.5	0.6	6.5	7.3	0.4	12.7	84.4	5.0	24.7	55.1	55.2
Cycle Q Clear(g_c), s	5.5	6.5	0.6	6.5	7.3	0.4	12.7	84.4	5.0	24.7	55.1	55.2
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	143	122	102	155	123	103	566	1588	708	316	614	639
V/C Ratio(X)	0.39	0.55	0.09	1.04	0.61	0.05	0.45	1.16	0.15	0.78	0.90	0.90
Avail Cap(c_a), veh/h	143	308	258	155	311	260	566	1588	708	316	779	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58
Uniform Delay (d), s/veh	65.3	71.2	22.1	72.9	71.5	32.9	38.2	37.8	11.3	59.5	44.0	44.0
Incr Delay (d2), s/veh	1.7	3.8	0.4	83.1	4.8	0.2	0.7	78.8	0.5	7.1	11.9	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	5.1	0.6	11.9	5.7	0.4	12.3	66.2	4.0	14.0	28.3	29.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	74.9	22.5	156.0	76.3	33.1	38.9	116.6	11.7	66.6	55.8	55.5
LnGrp LOS	E	E	C	F	E	C	D	F	B	E	E	E
Approach Vol, veh/h		132			241			2203			1370	
Approach Delay, s/veh		68.0			128.6			102.4			57.6	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	39.8	90.4	12.0	17.8	58.4	71.8	12.0	17.8				
Change Period (Y+Rc), s	6.0	* 6	5.5	5.5	6.0	6.0	6.0	5.5				
Max Green Setting (Gmax), s	16.0	* 84	6.5	31.1	16.0	83.4	6.0	31.1				
Max Q Clear Time (g_c+Q), s	26.7	86.4	8.5	8.5	14.7	57.2	7.5	9.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.1	8.6	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	87.3
HCM 6th LOS	F

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	117	117	125	87	152	99	1542	150	163	1192	75
Future Volume (veh/h)	112	117	117	125	87	152	99	1542	150	163	1192	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1572	1572	1572	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	115	121	121	129	90	157	102	1590	155	168	1229	77
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	113	228	187	103	216	176	248	1827	811	297	1793	112
Arrive On Green	0.08	0.14	0.14	0.07	0.14	0.14	0.08	1.00	1.00	0.06	0.62	0.62
Sat Flow, veh/h	1509	1585	1301	1497	1572	1283	1509	3011	1336	1509	2875	180
Grp Volume(v), veh/h	115	121	121	129	90	157	102	1590	155	168	643	663
Grp Sat Flow(s),veh/h/ln	1509	1585	1301	1497	1572	1283	1509	1506	1336	1509	1506	1549
Q Serve(g_s), s	12.0	11.3	14.1	11.0	8.4	19.2	4.2	0.0	0.0	6.8	44.9	45.1
Cycle Q Clear(g_c), s	12.0	11.3	14.1	11.0	8.4	19.2	4.2	0.0	0.0	6.8	44.9	45.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	113	228	187	103	216	176	248	1827	811	297	939	966
V/C Ratio(X)	1.02	0.53	0.65	1.25	0.42	0.89	0.41	0.87	0.19	0.57	0.68	0.69
Avail Cap(c_a), veh/h	113	317	260	103	305	249	283	1827	811	354	939	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.21	0.21	0.21	0.71	0.71	0.71
Uniform Delay (d), s/veh	74.0	63.5	64.7	74.5	63.2	67.8	17.4	0.0	0.0	10.2	19.8	19.8
Incr Delay (d2), s/veh	88.9	1.9	3.7	171.4	1.3	23.8	0.2	1.4	0.1	1.2	2.9	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	2.1	8.3	8.5	15.2	6.3	12.1	2.2	0.6	0.0	4.3	21.9	22.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	162.9	65.5	68.4	245.9	64.4	91.6	17.6	1.4	0.1	11.4	22.7	22.7
LnGrp LOS	F	E	E	F	E	F	B	A	A	B	C	C
Approach Vol, veh/h		357			376			1847			1474	
Approach Delay, s/veh		97.9			138.1			2.2			21.4	
Approach LOS		F			F			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	102.1	16.0	28.0	11.3	104.8	17.0	27.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	82.0	11.0	32.0	10.0	87.0	12.0	31.0				
Max Q Clear Time (g_c+1/3), s	10.0	2.0	13.0	16.1	6.2	47.1	14.0	21.2				
Green Ext Time (p_c), s	0.2	24.3	0.0	1.0	0.1	12.3	0.0	0.7				

Intersection Summary												
HCM 6th Ctrl Delay											30.2	
HCM 6th LOS											C	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↘		↗	↕		↗	↕	↘
Traffic Volume (veh/h)	0	0	2	55	0	43	1	1697	42	57	1496	0
Future Volume (veh/h)	0	0	2	55	0	43	1	1697	42	57	1496	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	0.89		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	1610	1572	1572	1572	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	0	0	2	57	0	44	1	1749	43	59	1542	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	3	3	1	1	1	1	1	1
Cap, veh/h	0	0	93	139	0	97	317	2408	59	234	2515	0
Arrive On Green	0.00	0.00	0.08	0.08	0.00	0.08	0.00	0.80	0.80	0.05	1.00	0.00
Sat Flow, veh/h	0	0	1219	1256	0	1275	1521	3027	74	1521	3115	0
Grp Volume(v), veh/h	0	0	2	57	0	44	1	874	918	59	1542	0
Grp Sat Flow(s),veh/h/ln	0	0	1219	1256	0	1275	1521	1518	1584	1521	1518	0
Q Serve(g_s), s	0.0	0.0	0.2	7.0	0.0	5.3	0.0	44.5	45.1	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.2	7.3	0.0	5.3	0.0	44.5	45.1	1.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	93	139	0	97	317	1207	1260	234	2515	0
V/C Ratio(X)	0.00	0.00	0.02	0.41	0.00	0.45	0.00	0.72	0.73	0.25	0.61	0.00
Avail Cap(c_a), veh/h	0	0	190	239	0	199	390	1207	1260	267	2515	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.60	0.60	0.60	0.34	0.34	0.00
Uniform Delay (d), s/veh	0.0	0.0	68.4	71.8	0.0	70.7	3.3	7.9	8.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	2.8	0.0	4.7	0.0	2.3	2.3	0.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	0.0	0.1	4.3	0.0	3.4	0.0	18.3	19.2	1.4	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	68.5	74.6	0.0	75.4	3.3	10.2	10.2	11.1	0.4	0.0
LnGrp LOS	A	A	E	E	A	E	A	B	B	B	A	A
Approach Vol, veh/h		2			101			1793			1601	
Approach Delay, s/veh		68.5			74.9			10.2			0.8	
Approach LOS		E			E			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	132.3			17.2	5.3	137.6		17.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	111.0			25.0	8.0	112.0		25.0				
Max Q Clear Time (g_c+13), s	47.1			2.2	2.0	2.0		9.3				
Green Ext Time (p_c), s	0.1	38.3		0.0	0.0	35.8		0.5				
Intersection Summary												
HCM 6th Ctrl Delay				7.8								
HCM 6th LOS				A								

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	98	157	171	117	166	144	1481	46	136	1267	175
Future Volume (veh/h)	152	98	157	171	117	166	144	1481	46	136	1267	175
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	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	158	102	164	178	122	173	150	1543	48	142	1320	182
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	1	1	1
Cap, veh/h	165	207	174	139	205	173	372	1831	57	150	1449	644
Arrive On Green	0.06	0.13	0.13	0.06	0.13	0.13	0.21	0.61	0.61	0.05	0.32	0.32
Sat Flow, veh/h	1521	1597	1344	1509	1585	1337	1509	2981	93	1521	3035	1350
Grp Volume(v), veh/h	158	102	164	178	122	173	150	778	813	142	1320	182
Grp Sat Flow(s),veh/h/ln	1521	1597	1344	1509	1585	1337	1509	1506	1568	1521	1518	1350
Q Serve(g_s), s	9.2	9.5	13.4	10.0	11.6	17.6	6.8	66.0	66.6	10.1	66.8	16.1
Cycle Q Clear(g_c), s	9.2	9.5	13.4	10.0	11.6	17.6	6.8	66.0	66.6	10.1	66.8	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	165	207	174	139	205	173	372	925	963	150	1449	644
V/C Ratio(X)	0.96	0.49	0.94	1.28	0.59	1.00	0.40	0.84	0.84	0.95	0.91	0.28
Avail Cap(c_a), veh/h	165	339	286	139	337	284	372	925	963	150	1574	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(l)	0.83	0.83	0.83	1.00	1.00	1.00	0.56	0.56	0.56	0.79	0.79	0.79
Uniform Delay (d), s/veh	72.3	64.7	33.1	71.4	65.7	50.2	51.4	24.6	24.7	46.8	51.2	33.9
Incr Delay (d2), s/veh	51.2	1.1	21.6	168.8	2.0	39.8	0.4	5.4	5.3	50.6	8.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	3.3	7.0	9.1	13.8	8.5	12.5	7.9	30.4	31.7	12.2	35.8	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	123.5	65.9	54.7	240.2	67.7	90.0	51.8	30.0	30.0	97.4	59.5	34.8
LnGrp LOS	F	E	D	F	E	F	D	C	C	F	E	C
Approach Vol, veh/h		424			473			1741			1644	
Approach Delay, s/veh		83.0			140.8			31.9			60.0	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.9	81.4	15.0	25.7	16.0	103.3	15.0	25.7				
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	33.0	83.0	10.0	34.0	11.0	85.0	10.0	34.0				
Max Q Clear Time (g_c+1/3), s	19.8	68.8	11.2	19.6	12.1	68.6	12.0	15.4				
Green Ext Time (p_c), s	0.1	7.6	0.0	0.9	0.0	9.1	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay											59.8	
HCM 6th LOS											E	

HCM 6th Signalized Intersection Summary

30: N Callow Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔↔		↔	↑	↔	↔	↔	↔
Traffic Volume (veh/h)	40	1021	96	201	958	47	53	131	138	33	60	21
Future Volume (veh/h)	40	1021	96	201	958	47	53	131	138	33	60	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.96	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	42	1064	100	209	998	49	55	136	144	34	62	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	2	2	2
Cap, veh/h	74	1598	149	334	2127	104	67	313	256	182	126	45
Arrive On Green	0.62	0.62	0.62	0.14	1.00	1.00	0.04	0.20	0.20	0.11	0.11	0.11
Sat Flow, veh/h	67	2568	239	1509	2917	143	1521	1597	1306	1070	1104	392
Grp Volume(v), veh/h	617	0	589	209	515	532	55	136	144	34	0	84
Grp Sat Flow(s),veh/h/ln	1466	0	1408	1509	1506	1554	1521	1597	1306	1070	0	1495
Q Serve(g_s), s	7.7	0.0	32.6	6.2	0.0	0.0	4.3	9.0	12.0	3.5	0.0	6.3
Cycle Q Clear(g_c), s	30.0	0.0	32.6	6.2	0.0	0.0	4.3	9.0	12.0	3.5	0.0	6.3
Prop In Lane	0.07		0.17	1.00		0.09	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	944	0	876	334	1098	1133	67	313	256	182	0	171
V/C Ratio(X)	0.65	0.00	0.67	0.63	0.47	0.47	0.82	0.43	0.56	0.19	0.00	0.49
Avail Cap(c_a), veh/h	944	0	876	361	1098	1133	133	552	452	296	0	330
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.50	0.50	0.50	0.56	0.56	0.56	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	14.7	13.3	0.0	0.0	56.9	42.4	43.6	48.6	0.0	49.9
Incr Delay (d2), s/veh	3.5	0.0	4.1	1.5	0.7	0.7	12.4	0.5	1.1	0.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft6.0	0.0	0.0	16.2	4.1	0.4	0.4	3.4	6.0	6.4	1.7	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	0.0	18.8	14.8	0.7	0.7	69.3	42.9	44.7	49.1	0.0	52.1
LnGrp LOS	B	A	B	B	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1206			1256			335			118	
Approach Delay, s/veh		18.2			3.1			48.0			51.2	
Approach LOS		B			A			D			D	
Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		28.0		92.0	9.8	18.2	12.8	79.2				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		41.5		69.5	10.5	26.5	10.5	54.5				
Max Q Clear Time (g_c+I1), s		14.0		2.0	6.3	8.3	8.2	34.6				
Green Ext Time (p_c), s		1.3		9.1	0.0	0.5	0.1	8.9				
Intersection Summary												
HCM 6th Ctrl Delay					16.4							
HCM 6th LOS					B							

HCM 6th Signalized Intersection Summary

31: Naval Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1132	19	21	1004	18	303	76	87	12	41	22
Future Volume (veh/h)	25	1132	19	21	1004	18	303	76	87	12	41	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1597	1597	1597	1597	1597	1597
Adj Flow Rate, veh/h	27	1230	21	23	1091	20	329	83	95	13	45	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	45	1586	27	40	1563	29	326	230	263	47	81	38
Arrive On Green	0.01	0.17	0.17	0.05	1.00	1.00	0.21	0.34	0.34	0.09	0.09	0.09
Sat Flow, veh/h	1521	3053	52	1509	3025	55	1521	673	770	133	905	429
Grp Volume(v), veh/h	27	611	640	23	543	568	329	0	178	82	0	0
Grp Sat Flow(s),veh/h/ln	1521	1518	1588	1509	1506	1575	1521	0	1443	1467	0	0
Q Serve(g_s), s	2.1	46.2	46.2	1.8	0.0	0.0	25.7	0.0	11.1	1.9	0.0	0.0
Cycle Q Clear(g_c), s	2.1	46.2	46.2	1.8	0.0	0.0	25.7	0.0	11.1	6.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.04	1.00		0.53	0.16		0.29
Lane Grp Cap(c), veh/h	45	788	825	40	778	814	326	0	492	166	0	0
V/C Ratio(X)	0.60	0.78	0.78	0.57	0.70	0.70	1.01	0.00	0.36	0.49	0.00	0.00
Avail Cap(c_a), veh/h	77	788	825	77	778	814	326	0	628	301	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.39	0.39	0.39	0.78	0.78	0.78	0.64	0.00	0.64	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.7	43.0	43.0	56.1	0.0	0.0	47.2	0.0	29.7	52.6	0.0	0.0
Incr Delay (d2), s/veh	4.9	3.0	2.9	9.5	4.1	3.9	42.3	0.0	0.3	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	24.0	25.0	1.4	1.6	1.6	18.5	0.0	6.6	4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	46.0	45.9	65.6	4.1	3.9	89.5	0.0	30.0	54.9	0.0	0.0
LnGrp LOS	E	D	D	E	A	A	F	A	C	D	A	A
Approach Vol, veh/h		1278			1134			507				82
Approach Delay, s/veh		46.3			5.2			68.6				54.9
Approach LOS		D			A			E				D
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	66.8	30.2	15.2	8.1	66.5		45.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	48.2	25.7	22.0	6.1	48.2			52.2				
Max Q Clear Time (g_c+1/3), s	48.2	27.7	8.4	4.1	2.0			13.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	9.6		1.2				
Intersection Summary												
HCM 6th Ctrl Delay												34.8
HCM 6th LOS												C

HCM 6th Signalized Intersection Summary

32: High Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	34	1200	10	19	1113	15	21	23	14	37	11	56
Future Volume (veh/h)	34	1200	10	19	1113	15	21	23	14	37	11	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	37	1304	11	21	1210	16	23	25	15	40	12	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	2	2	2
Cap, veh/h	264	1997	17	364	1939	26	41	98	59	56	26	130
Arrive On Green	0.07	1.00	1.00	0.02	0.43	0.43	0.03	0.11	0.11	0.04	0.12	0.12
Sat Flow, veh/h	1521	3084	26	1509	3042	40	1533	920	552	1509	219	1113
Grp Volume(v), veh/h	37	642	673	21	599	627	23	0	40	40	0	73
Grp Sat Flow(s),veh/h/ln	1521	1518	1593	1509	1506	1576	1533	0	1471	1509	0	1332
Q Serve(g_s), s	1.0	0.0	0.0	0.6	37.3	37.3	1.8	0.0	3.0	3.1	0.0	6.1
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.6	37.3	37.3	1.8	0.0	3.0	3.1	0.0	6.1
Prop In Lane	1.00		0.02	1.00		0.03	1.00		0.38	1.00		0.84
Lane Grp Cap(c), veh/h	264	983	1031	364	960	1005	41	0	157	56	0	156
V/C Ratio(X)	0.14	0.65	0.65	0.06	0.62	0.62	0.56	0.00	0.25	0.72	0.00	0.47
Avail Cap(c_a), veh/h	317	983	1031	433	960	1005	96	0	337	94	0	305
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.49	0.49	0.49	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	7.0	23.1	23.1	57.7	0.0	49.2	57.2	0.0	49.5
Incr Delay (d2), s/veh	0.1	1.7	1.6	0.1	3.1	2.9	11.4	0.0	0.8	16.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.8	0.8	0.3	21.2	22.0	1.5	0.0	2.1	2.6	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	1.7	1.6	7.1	26.2	26.1	69.1	0.0	50.0	73.1	0.0	51.7
LnGrp LOS	B	A	A	A	C	C	E	A	D	E	A	D
Approach Vol, veh/h		1352			1247			63			113	
Approach Delay, s/veh		1.9			25.8			57.0			59.3	
Approach LOS		A			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	18.3	8.5	83.2	8.7	19.5	9.8	82.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5	27.5	8.5	54.5	7.5	27.5	8.5	54.5				
Max Q Clear Time (g_c+1/5), s	5	5.0	2.6	2.0	3.8	8.1	3.0	39.3				
Green Ext Time (p_c), s	0.0	0.1	0.0	13.0	0.0	0.3	0.0	7.4				

Intersection Summary

HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

33: Park Ave & 11th St

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	469	99	6	506	23	165	98	29	8	44	34
Future Volume (veh/h)	19	469	99	6	506	23	165	98	29	8	44	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		0.95	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1560	1560	1560	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	21	521	110	7	562	26	183	109	32	9	49	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	2	2	2
Cap, veh/h	44	727	591	16	656	30	200	80	412	64	220	413
Arrive On Green	0.03	0.46	0.46	0.01	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1497	1572	1279	1485	1477	68	344	252	1298	0	692	1300
Grp Volume(v), veh/h	21	521	110	7	0	588	292	0	32	58	0	38
Grp Sat Flow(s),veh/h/ln	1497	1572	1279	1485	0	1545	596	0	1298	692	0	1300
Q Serve(g_s), s	0.9	17.2	3.3	0.3	0.0	22.0	0.0	0.0	1.1	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.9	17.2	3.3	0.3	0.0	22.0	20.5	0.0	1.1	20.5	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.04	0.63		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	44	727	591	16	0	686	280	0	412	284	0	413
V/C Ratio(X)	0.48	0.72	0.19	0.43	0.00	0.86	1.04	0.00	0.08	0.20	0.00	0.09
Avail Cap(c_a), veh/h	476	1596	1299	472	0	1569	280	0	412	284	0	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	14.0	10.2	31.7	0.0	16.1	25.0	0.0	15.4	16.6	0.0	15.5
Incr Delay (d2), s/veh	8.0	1.3	0.2	16.9	0.0	3.2	65.1	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.7	9.4	1.5	0.3	0.0	11.8	14.7	0.0	0.6	1.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	15.3	10.4	48.6	0.0	19.3	90.1	0.0	15.5	17.0	0.0	15.6
LnGrp LOS	D	B	B	D	A	B	F	A	B	B	A	B
Approach Vol, veh/h		652			595			324				96
Approach Delay, s/veh		15.2			19.7			82.7				16.4
Approach LOS		B			B			F				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	5.2	34.3		25.0	6.4	33.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	20.5	65.5		20.5	20.5	65.5				
Max Q Clear Time (g_c+I1), s		22.5	2.3	19.2		22.5	2.9	24.0				
Green Ext Time (p_c), s		0.0	0.0	4.3		0.0	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay												30.0
HCM 6th LOS												C

MOVEMENT SUMMARY

Site: 34 [Washington Ave & Manette Bridge (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

NA
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: Washington Ave (NB)															
8	T1	All MCs	326	4.0	326	4.0	1.013	32.7	LOS F	31.2	805.4	1.00	1.99	2.57	18.2
18	R2	All MCs	586	4.0	586	4.0	1.013	33.1	LOS F	31.2	805.4	1.00	1.99	2.57	19.1
Approach			912	4.0	912	4.0	1.013	32.9	LOS C	31.2	805.4	1.00	1.99	2.57	18.8
East: Manette Bridge (WB)															
1	L2	All MCs	435	3.0	435	3.0	0.606	9.1	LOS A	4.9	125.1	0.68	0.69	0.73	24.5
16	R2	All MCs	179	3.0	179	3.0	0.606	5.8	LOS A	4.9	125.1	0.68	0.69	0.73	24.6
Approach			614	3.0	614	3.0	0.606	8.1	LOS A	4.9	125.1	0.68	0.69	0.73	24.5
North: Washington Ave (SB)															
7	L2	All MCs	444	2.0	444	2.0	0.512	8.7	LOS A	3.8	95.3	0.71	0.71	0.75	24.2
4	T1	All MCs	28	2.0	28	2.0	0.512	5.1	LOS A	3.8	95.3	0.71	0.71	0.75	22.8
Approach			471	2.0	471	2.0	0.512	8.5	LOS A	3.8	95.3	0.71	0.71	0.75	24.1
All Vehicles			1997	3.2	1997	3.2	1.013	19.5	LOS B	31.2	805.4	0.83	1.29	1.58	21.5

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:29:21 PM

Project: C:\Users\Daniel Hodun\TISI Dropbox\Daniel Hodun\TISI Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Baseline + Alt 1.sip9

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↕			↖	↗		↕	
Traffic Volume (veh/h)	20	21	9	1023	4	47	2	345	931	24	304	0
Future Volume (veh/h)	20	21	9	1023	4	47	2	345	931	24	304	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1610	1610	1610	1597	1597	1597	1585	1585	1585	1585	1585	1585
Adj Flow Rate, veh/h	20	21	9	1092	0	0	2	352	950	24	310	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	2	2	2	2	2	2
Cap, veh/h	132	138	59	1105	580	0	39	441	1490	56	614	0
Arrive On Green	0.22	0.22	0.22	0.36	0.00	0.00	0.28	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	611	642	275	3043	1597	0	2	1583	2265	44	2273	0
Grp Volume(v), veh/h	50	0	0	1092	0	0	354	0	950	157	177	0
Grp Sat Flow(s),veh/h/ln	1528	0	0	1521	1597	0	1584	0	1132	875	1370	0
Q Serve(g_s), s	2.5	0.0	0.0	33.9	0.0	0.0	0.0	0.0	24.6	1.6	10.2	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	33.9	0.0	0.0	19.7	0.0	24.6	21.3	10.2	0.0
Prop In Lane	0.40		0.18	1.00		0.00	0.01		1.00	0.15		0.00
Lane Grp Cap(c), veh/h	330	0	0	1105	580	0	480	0	1490	288	382	0
V/C Ratio(X)	0.15	0.00	0.00	0.99	0.00	0.00	0.74	0.00	0.64	0.54	0.46	0.00
Avail Cap(c_a), veh/h	330	0	0	1105	580	0	480	0	1490	288	382	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.65	0.00	0.00	1.00	0.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	30.0	0.0	0.0	31.8	0.0	10.5	28.0	28.4	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	19.2	0.0	0.0	6.4	0.0	1.1	2.4	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	0.0	20.1	0.0	0.0	12.9	0.0	16.9	5.5	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	0.0	0.0	49.3	0.0	0.0	38.2	0.0	11.5	30.4	29.5	0.0
LnGrp LOS	C	A	A	D	A	A	D	A	B	C	C	A
Approach Vol, veh/h		50		1092			1304				334	
Approach Delay, s/veh		30.4		49.3			18.8				29.9	
Approach LOS		C		D			B				C	
Timer - Assigned Phs		2		4			6				8	
Phs Duration (G+Y+Rc), s		31.0		25.0			31.0				39.0	
Change Period (Y+Rc), s		4.5		4.5			4.5				4.5	
Max Green Setting (Gmax), s		26.5		20.5			26.5				34.5	
Max Q Clear Time (g_c+I1), s		26.6		4.5			23.3				35.9	
Green Ext Time (p_c), s		0.0		0.2			0.8				0.0	

Intersection Summary

HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	57	880	6	6	1299	11	6	69	56	71	6	52
Future Volume (veh/h)	57	880	6	6	1299	11	6	69	56	71	6	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1610	1610	1610	1610	1610	1610
Adj Flow Rate, veh/h	61	946	6	6	1397	12	6	74	60	76	6	56
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	124	1823	12	43	2265	19	45	123	95	149	23	75
Arrive On Green	0.75	0.75	0.75	0.75	0.75	0.75	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	105	2425	16	3	3013	26	25	830	641	589	155	508
Grp Volume(v), veh/h	465	0	548	741	0	674	140	0	0	138	0	0
Grp Sat Flow(s),veh/h/ln	1107	0	1439	1592	0	1449	1496	0	0	1252	0	0
Q Serve(g_s), s	4.5	0.0	13.7	0.0	0.0	19.4	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	23.9	0.0	13.7	19.3	0.0	19.4	8.0	0.0	0.0	9.7	0.0	0.0
Prop In Lane	0.13		0.01	0.01		0.02	0.04		0.43	0.55		0.41
Lane Grp Cap(c), veh/h	877	0	1082	1238	0	1089	263	0	0	247	0	0
V/C Ratio(X)	0.53	0.00	0.51	0.60	0.00	0.62	0.53	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	877	0	1082	1238	0	1089	692	0	0	629	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	4.5	5.2	0.0	5.2	36.0	0.0	0.0	36.7	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	1.4	2.1	0.0	2.6	2.0	0.0	0.0	2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	6.4	9.5	0.0	9.0	5.4	0.0	0.0	5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	0.0	5.9	7.3	0.0	7.8	38.1	0.0	0.0	39.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1013			1415			140			138	
Approach Delay, s/veh		6.1			7.6			38.1			39.1	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.8		72.2		17.8		72.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		39.5		41.5		39.5		41.5				
Max Q Clear Time (g_c+I1), s		10.0		25.9		11.7		21.4				
Green Ext Time (p_c), s		1.0		10.4		1.0		15.7				
Intersection Summary												
HCM 6th Ctrl Delay					10.2							
HCM 6th LOS					B							

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖	↖↗	↖	↖	↖↗
Traffic Volume (veh/h)	161	839	6	25	921	23	266	365	137	46	61	151
Future Volume (veh/h)	161	839	6	25	921	23	266	365	137	46	61	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1597	1597	1597	1610	1610	1610	1597	1597	1597
Adj Flow Rate, veh/h	177	922	7	27	1012	25	292	401	151	51	67	166
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	200	1392	11	46	1058	26	314	516	424	64	252	210
Arrive On Green	0.13	0.45	0.45	0.03	0.35	0.35	0.20	0.32	0.32	0.04	0.16	0.16
Sat Flow, veh/h	1521	3087	23	1521	3027	75	1533	1610	1322	1521	1597	1331
Grp Volume(v), veh/h	177	453	476	27	507	530	292	401	151	51	67	166
Grp Sat Flow(s),veh/h/ln	1521	1518	1593	1521	1518	1584	1533	1610	1322	1521	1597	1331
Q Serve(g_s), s	13.2	26.9	26.9	2.0	37.6	37.6	21.5	25.9	10.1	3.8	4.2	13.8
Cycle Q Clear(g_c), s	13.2	26.9	26.9	2.0	37.6	37.6	21.5	25.9	10.1	3.8	4.2	13.8
Prop In Lane	1.00		0.01	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	684	718	46	531	554	314	516	424	64	252	210
V/C Ratio(X)	0.89	0.66	0.66	0.59	0.96	0.96	0.93	0.78	0.36	0.80	0.27	0.79
Avail Cap(c_a), veh/h	200	684	718	81	534	558	320	547	449	97	311	259
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	49.1	24.7	24.7	55.1	36.5	36.5	44.9	35.4	30.0	54.6	42.6	46.6
Incr Delay (d2), s/veh	34.8	2.5	2.4	13.6	28.2	27.4	32.5	6.9	0.6	26.3	0.7	13.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	15.3	15.9	1.7	24.9	25.7	16.5	16.6	6.0	3.5	3.1	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.0	27.3	27.2	68.7	64.7	64.0	77.4	42.2	30.6	81.0	43.3	60.0
LnGrp LOS	F	C	C	E	E	E	E	D	C	F	D	E
Approach Vol, veh/h		1106			1064			844			284	
Approach Delay, s/veh		36.3			64.5			52.3			59.8	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	41.4	8.0	56.4	28.1	22.6	19.6	44.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	39.1	6.1	49.5	24.0	22.4	15.1	40.5					
Max Q Clear Time (g_c+1/5), s	27.9	4.0	28.9	23.5	15.8	15.2	39.6					
Green Ext Time (p_c), s	0.0	2.9	0.0	7.6	0.1	0.6	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕↕	
Traffic Volume (veh/h)	76	1019	16	10	822	8	125	16	15	0	20	6
Future Volume (veh/h)	76	1019	16	10	822	8	125	16	15	0	20	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.72		0.79	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1572	1572	1572	1585	1585	1585	1560	1560	1560
Adj Flow Rate, veh/h	81	1084	17	11	874	9	133	17	16	0	21	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	4	4	4
Cap, veh/h	139	1774	28	28	1162	12	180	19	17	0	193	55
Arrive On Green	0.76	0.76	0.76	0.76	0.76	0.76	0.19	0.19	0.19	0.00	0.19	0.19
Sat Flow, veh/h	150	2333	36	8	1528	16	760	101	92	0	1039	297
Grp Volume(v), veh/h	513	0	669	894	0	0	166	0	0	0	0	27
Grp Sat Flow(s),veh/h/ln1084	0	1436	1552	0	0	953	0	0	0	0	0	1335
Q Serve(g_s), s	6.0	0.0	34.7	0.0	0.0	0.0	25.9	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	58.7	0.0	34.7	52.7	0.0	0.0	28.7	0.0	0.0	0.0	0.0	2.8
Prop In Lane	0.16		0.03	0.01		0.01	0.80		0.10	0.00		0.22
Lane Grp Cap(c), veh/h	849	0	1091	1202	0	0	216	0	0	0	0	248
V/C Ratio(X)	0.60	0.00	0.61	0.74	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.11
Avail Cap(c_a), veh/h	849	0	1091	1202	0	0	220	0	0	0	0	253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.00	0.75	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	0.0	8.9	11.1	0.0	0.0	68.1	0.0	0.0	0.0	0.0	56.2
Incr Delay (d2), s/veh	2.4	0.0	1.9	4.2	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft6.8	0.0	0.0	15.8	25.9	0.0	0.0	12.4	0.0	0.0	0.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.0	10.9	15.3	0.0	0.0	81.5	0.0	0.0	0.0	0.0	56.3
LnGrp LOS	B	A	B	B	A	A	F	A	A	A	A	E
Approach Vol, veh/h		1182			894			166				27
Approach Delay, s/veh		11.6			15.3			81.5				56.3
Approach LOS		B			B			F				E
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		130.7		35.3		130.7		35.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		125.5		31.5		125.5		31.5				
Max Q Clear Time (g_c+I1), s		60.7		4.8		54.7		30.7				
Green Ext Time (p_c), s		20.3		0.1		16.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay					18.7							
HCM 6th LOS					B							

HCM 6th Signalized Intersection Summary

40: Burwell St (SR 304) & Park Ave

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Volume (veh/h)	68	575	497	59	15	132
Future Volume (veh/h)	68	575	497	59	15	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1572	1572	1597	1597	1610	1610
Adj Flow Rate, veh/h	92	777	672	80	20	178
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	3	3	1	1	0	0
Cap, veh/h	232	1290	1376	164	26	233
Arrive On Green	0.50	0.50	0.50	0.50	0.19	0.19
Sat Flow, veh/h	168	2628	2807	324	138	1225
Grp Volume(v), veh/h	445	424	374	378	199	0
Grp Sat Flow(s),veh/h/ln	1365	1359	1518	1534	1370	0
Q Serve(g_s), s	0.7	6.6	4.8	4.8	4.1	0.0
Cycle Q Clear(g_c), s	6.0	6.6	4.8	4.8	4.1	0.0
Prop In Lane	0.21			0.21	0.10	0.89
Lane Grp Cap(c), veh/h	836	686	766	774	261	0
V/C Ratio(X)	0.53	0.62	0.49	0.49	0.76	0.00
Avail Cap(c_a), veh/h	2136	2098	2342	2367	1185	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.1	5.3	4.8	4.8	11.3	0.0
Incr Delay (d2), s/veh	0.4	0.7	0.4	0.4	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	1.8	1.4	1.4	2.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.4	5.9	5.2	5.2	14.8	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		869	752		199	
Approach Delay, s/veh		5.7	5.2		14.8	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		19.4		10.1		19.4
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		45.5		25.5		45.5
Max Q Clear Time (g_c+I1), s		8.6		6.1		6.8
Green Ext Time (p_c), s		6.3		0.5		4.7

Intersection Summary

HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

42: Pacific Ave & Burwell St (SR 304)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕						↕	
Traffic Volume (veh/h)	25	291	242	132	283	67	0	0	0	53	106	41
Future Volume (veh/h)	25	291	242	132	283	67	0	0	0	53	106	41
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.87	0.97		0.96				1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1572	1572	1572				1597	1597	1597
Adj Flow Rate, veh/h	28	327	272	148	318	75				60	119	46
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3				1	1	1
Cap, veh/h	103	800	624	220	409	87				113	224	87
Arrive On Green	0.54	0.54	0.54	0.54	0.54	0.54				0.31	0.31	0.31
Sat Flow, veh/h	53	1493	1165	246	763	162				364	722	279
Grp Volume(v), veh/h	355	0	272	541	0	0				225	0	0
Grp Sat Flow(s),veh/h/ln	1545	0	1165	1171	0	0				1364	0	0
Q Serve(g_s), s	0.0	0.0	7.4	14.0	0.0	0.0				7.1	0.0	0.0
Cycle Q Clear(g_c), s	7.0	0.0	7.4	21.1	0.0	0.0				7.1	0.0	0.0
Prop In Lane	0.08		1.00	0.27		0.14				0.27		0.20
Lane Grp Cap(c), veh/h	902	0	624	716	0	0				424	0	0
V/C Ratio(X)	0.39	0.00	0.44	0.76	0.00	0.00				0.53	0.00	0.00
Avail Cap(c_a), veh/h	1426	0	1030	1136	0	0				813	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	0.0	7.3	10.4	0.0	0.0				14.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.5	1.7	0.0	0.0				1.0	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
%ile BackOfQ(95%),veh/ln	3.5	0.0	2.7	8.0	0.0	0.0				3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	0.0	7.8	12.1	0.0	0.0				15.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A				B	A	A
Approach Vol, veh/h		627			541						225	
Approach Delay, s/veh		7.6			12.1						15.8	
Approach LOS		A			B						B	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		31.9		20.1		31.9						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		46.0		31.0		46.0						
Max Q Clear Time (g_c+I1), s		9.4		9.1		23.1						
Green Ext Time (p_c), s		4.0		1.5		4.8						
Intersection Summary												
HCM 6th Ctrl Delay											10.7	
HCM 6th LOS											B	

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Volume (veh/h)	291	6	0	0	3	3	168	337	0	6	0	162
Future Volume (veh/h)	291	6	0	0	3	3	168	337	0	6	0	162
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.96		1.00	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1610	1610	0	0	1610	1610	1535	1535	1535	1547	1547	1547
Adj Flow Rate, veh/h	355	7	0	0	4	4	205	411	0	7	0	198
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	0	0	0	0	6	6	6	5	5	5
Cap, veh/h	450	9	0	0	9	9	417	734	0	85	12	467
Arrive On Green	0.30	0.30	0.00	0.00	0.01	0.01	0.40	0.40	0.00	0.40	0.00	0.40
Sat Flow, veh/h	1505	30	0	0	730	730	734	1927	0	12	30	1182
Grp Volume(v), veh/h	362	0	0	0	0	8	327	289	0	205	0	0
Grp Sat Flow(s),veh/h/ln	1535	0	0	0	0	1460	1264	1327	0	1224	0	0
Q Serve(g_s), s	10.0	0.0	0.0	0.0	0.0	0.3	3.8	7.8	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.0	0.0	0.0	0.0	0.0	0.3	9.4	7.8	0.0	5.6	0.0	0.0
Prop In Lane	0.98		0.00	0.00		0.50	0.63		0.00	0.03		0.97
Lane Grp Cap(c), veh/h	459	0	0	0	0	19	627	524	0	565	0	0
V/C Ratio(X)	0.79	0.00	0.00	0.00	0.00	0.43	0.52	0.55	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	849	0	0	0	0	491	1620	1598	0	1542	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	0.0	0.0	22.6	11.1	10.8	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.0	0.0	5.8	0.8	1.1	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(95%),veh/lr	5.9	0.0	0.0	0.0	0.0	0.2	4.2	3.7	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	0.0	0.0	0.0	0.0	28.4	11.9	11.9	0.0	10.6	0.0	0.0
LnGrp LOS	B	A	A	A	A	C	B	B	A	B	A	A
Approach Vol, veh/h		362			8			616			205	
Approach Delay, s/veh		17.1			28.4			11.9			10.6	
Approach LOS		B			C			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.7		18.3		22.7		5.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		25.5		55.5		15.5				
Max Q Clear Time (g_c+I1), s		11.4		12.0		7.6		2.3				
Green Ext Time (p_c), s		6.0		1.6		2.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay											13.4	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary
 44: Charleston Blvd (SR 304) & S Cambrian Ave/Farragut Ave

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	36	69	545	182	144	35	1064	0	40	1211	6
Future Volume (veh/h)	40	36	69	545	182	144	35	1064	0	40	1211	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1547	1547	1547	1597	1597	1597	1597	1597	0	1585	1585	1585
Adj Flow Rate, veh/h	43	38	73	580	194	0	37	1132	0	43	1288	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	1	1	1	1	1	0	2	2	2
Cap, veh/h	66	127	107	551	357		62	1501	0	68	1531	7
Arrive On Green	0.04	0.08	0.08	0.19	0.22	0.00	0.04	0.49	0.00	0.04	0.50	0.50
Sat Flow, veh/h	1474	1547	1311	2951	1597	1354	1521	3115	0	1509	3073	14
Grp Volume(v), veh/h	43	38	73	580	194	0	37	1132	0	43	631	663
Grp Sat Flow(s),veh/h/ln	1474	1547	1311	1476	1597	1354	1521	1518	0	1509	1506	1582
Q Serve(g_s), s	2.5	2.0	4.6	16.0	9.2	0.0	2.1	25.8	0.0	2.4	31.0	31.1
Cycle Q Clear(g_c), s	2.5	2.0	4.6	16.0	9.2	0.0	2.1	25.8	0.0	2.4	31.0	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	66	127	107	551	357		62	1501	0	68	750	788
V/C Ratio(X)	0.65	0.30	0.68	1.05	0.54		0.59	0.75	0.00	0.64	0.84	0.84
Avail Cap(c_a), veh/h	481	505	428	551	357		284	3025	0	282	1501	1577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	37.1	38.3	34.9	29.4	0.0	40.4	17.5	0.0	40.3	18.6	18.6
Incr Delay (d2), s/veh	10.3	1.3	7.3	53.2	1.7	0.0	3.3	0.6	0.0	3.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	1.4	3.1	15.2	6.6	0.0	1.5	13.1	0.0	1.7	15.5	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	38.4	45.6	88.1	31.1	0.0	43.8	18.1	0.0	43.9	20.6	20.5
LnGrp LOS	D	D	D	F	C		D	B	A	D	C	C
Approach Vol, veh/h		154			774			1169			1337	
Approach Delay, s/veh		45.2			73.8			18.9			21.3	
Approach LOS		D			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	47.2	20.0	11.0	7.8	46.9	7.8	23.2				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.0	4.0	4.5	4.0	4.0				
Max Green Setting (Gmax), s	16.0	85.5	16.0	28.0	16.0	85.5	28.0	16.0				
Max Q Clear Time (g_c+14), s	14.5	33.1	18.0	6.6	4.4	27.8	4.5	11.2				
Green Ext Time (p_c), s	0.0	9.7	0.0	0.4	0.0	9.0	0.1	0.4				

Intersection Summary

HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↕		↖	↑↑	↗	↖	↑↑↑	
Traffic Volume (veh/h)	29	2	43	406	16	63	10	1036	5	10	1666	35
Future Volume (veh/h)	29	2	43	406	16	63	10	1036	5	10	1666	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1610	1610	1610	1585	1585	1585	1597	1597	1597
Adj Flow Rate, veh/h	30	2	44	491	0	0	10	1068	5	10	1718	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	0	0	0	2	2	2	1	1	1
Cap, veh/h	36	2	53	582	306	0	22	1726	770	22	2323	49
Arrive On Green	0.07	0.07	0.07	0.19	0.00	0.00	0.01	0.57	0.57	0.01	0.57	0.57
Sat Flow, veh/h	543	36	796	3067	1610	0	1509	3011	1343	1521	4053	85
Grp Volume(v), veh/h	76	0	0	491	0	0	10	1068	5	10	1083	671
Grp Sat Flow(s),veh/h/ln	1375	0	0	1533	1610	0	1509	1506	1343	1521	1278	1582
Q Serve(g_s), s	6.3	0.0	0.0	17.8	0.0	0.0	0.8	27.1	0.2	0.8	36.3	36.3
Cycle Q Clear(g_c), s	6.3	0.0	0.0	17.8	0.0	0.0	0.8	27.1	0.2	0.8	36.3	36.3
Prop In Lane	0.39		0.58	1.00		0.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	92	0	0	582	306	0	22	1726	770	22	1465	907
V/C Ratio(X)	0.82	0.00	0.00	0.84	0.00	0.00	0.46	0.62	0.01	0.46	0.74	0.74
Avail Cap(c_a), veh/h	190	0	0	1739	913	0	202	2215	988	204	1880	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	0.0	45.2	0.0	0.0	56.5	16.3	10.6	56.5	18.3	18.3
Incr Delay (d2), s/veh	16.5	0.0	0.0	2.6	0.0	0.0	5.7	0.5	0.0	5.6	1.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0	11.4	0.0	0.0	0.6	13.3	0.1	0.6	15.8	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	0.0	0.0	47.7	0.0	0.0	62.2	16.8	10.6	62.1	19.7	20.6
LnGrp LOS	E	A	A	D	A	A	E	B	B	E	B	C
Approach Vol, veh/h		76		491			1083			1764		
Approach Delay, s/veh		69.7		47.7			17.2			20.3		
Approach LOS		E		D			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	71.2		26.4	6.1	71.2		11.7				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0				
Max Green Setting (Gmax), s	15.5	85.0		65.5	15.5	85.0		16.0				
Max Q Clear Time (g_c+1), s	12.8	38.3		19.8	2.8	29.1		8.3				
Green Ext Time (p_c), s	0.0	27.9		1.4	0.0	13.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

46: Union Ave/Auto Center Blvd & Werner Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	6	148	105	469	167	90	38	65	134	167	375	14
Future Volume (veh/h)	6	148	105	469	167	90	38	65	134	167	375	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1547	1547	1547	1572	1572	1572	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	6	156	111	494	176	95	40	68	0	176	395	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	3	3	3
Cap, veh/h	14	188	134	500	511	276	124	471		428	447	17
Arrive On Green	0.01	0.22	0.22	0.33	0.53	0.53	0.30	0.30	0.00	0.30	0.30	0.30
Sat Flow, veh/h	1474	840	598	1497	961	518	976	1585	1343	1319	1505	57
Grp Volume(v), veh/h	6	0	267	494	0	271	40	68	0	176	0	410
Grp Sat Flow(s),veh/h/ln	1474	0	1438	1497	0	1479	976	1585	1343	1319	0	1562
Q Serve(g_s), s	0.4	0.0	16.4	30.5	0.0	9.8	3.8	2.9	0.0	10.5	0.0	23.2
Cycle Q Clear(g_c), s	0.4	0.0	16.4	30.5	0.0	9.8	27.0	2.9	0.0	13.4	0.0	23.2
Prop In Lane	1.00		0.42	1.00		0.35	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	14	0	321	500	0	787	124	471		428	0	464
V/C Ratio(X)	0.44	0.00	0.83	0.99	0.00	0.34	0.32	0.14		0.41	0.00	0.88
Avail Cap(c_a), veh/h	389	0	689	500	0	787	124	471		476	0	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	34.4	30.7	0.0	12.5	44.0	24.0	0.0	28.9	0.0	31.1
Incr Delay (d2), s/veh	28.6	0.0	7.7	37.1	0.0	0.4	2.1	0.2	0.0	1.1	0.0	16.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.4	0.0	10.3	22.0	0.0	5.5	1.8	2.0	0.0	6.2	0.0	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.4	0.0	42.1	67.9	0.0	12.8	46.1	24.1	0.0	30.0	0.0	47.4
LnGrp LOS	E	A	D	E	A	B	D	C		C	A	D
Approach Vol, veh/h		273		765		108		586				
Approach Delay, s/veh		42.8		48.4		32.3		42.2				
Approach LOS		D		D		C		D				
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	6.4	54.9	31.6	35.0	26.2	31.6						
Change Period (Y+Rc), s	5.5	* 5.5	4.0	4.0	5.5	4.0						
Max Green Setting (Gmax), s	24.5	* 36	26.0	31.0	44.5	31.0						
Max Q Clear Time (g_c+1), s	12.4	11.8	29.0	32.5	18.4	25.2						
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	2.3	2.4						

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↖	↖	↖		↖	↖	
Traffic Volume (veh/h)	19	455	27	146	678	129	19	17	114	211	53	121
Future Volume (veh/h)	19	455	27	146	678	129	19	17	114	211	53	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1585	1585	1585	1560	1560	1560	1547	1547	1547	1547	1547	1547
Adj Flow Rate, veh/h	20	474	28	152	706	0	20	18	0	220	55	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	5	5	5	5	5	5
Cap, veh/h	45	872	51	200	1206		457	381		492	381	
Arrive On Green	0.03	0.30	0.30	0.13	0.41	0.00	0.25	0.25	0.00	0.25	0.25	0.00
Sat Flow, veh/h	1509	2884	170	1485	2964	1322	1317	1547	0	1362	1547	0
Grp Volume(v), veh/h	20	247	255	152	706	0	20	18	0	220	55	0
Grp Sat Flow(s),veh/h/ln	1509	1506	1548	1485	1482	1322	1317	1547	0	1362	1547	0
Q Serve(g_s), s	0.6	5.8	5.9	4.2	7.9	0.0	0.5	0.4	0.0	6.3	1.2	0.0
Cycle Q Clear(g_c), s	0.6	5.8	5.9	4.2	7.9	0.0	1.7	0.4	0.0	6.6	1.2	0.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	45	455	468	200	1206		457	381		492	381	
V/C Ratio(X)	0.45	0.54	0.54	0.76	0.59		0.04	0.05		0.45	0.14	
Avail Cap(c_a), veh/h	372	1431	1472	1063	4208		1075	1108		1132	1108	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	12.4	12.4	17.8	9.8	0.0	13.2	12.2	0.0	14.8	12.5	0.0
Incr Delay (d2), s/veh	9.6	1.4	1.4	8.2	0.5	0.0	0.1	0.1	0.0	1.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	3.1	3.2	3.0	3.4	0.0	0.3	0.2	0.0	3.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	13.8	13.8	26.0	10.4	0.0	13.3	12.3	0.0	16.1	12.9	0.0
LnGrp LOS	C	B	B	C	B		B	B		B	B	
Approach Vol, veh/h		522			858			38			275	
Approach Delay, s/veh		14.4			13.2			12.8			15.5	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	21.8		15.0	10.2	17.4		15.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.5	60.5		30.5	30.5	40.5		30.5				
Max Q Clear Time (g_c+I), s	12.6	9.9		3.7	6.2	7.9		8.6				
Green Ext Time (p_c), s	0.0	6.8		0.2	0.7	4.6		2.1				

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	244	150	27	601	10	167	93	27	6	88	333
Future Volume (veh/h)	250	244	150	27	601	10	167	93	27	6	88	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1597	1597	1597	1585	1585	1585	1560	1560	1560
Adj Flow Rate, veh/h	272	265	163	29	653	11	182	101	29	7	96	362
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	2	2	2	4	4	4
Cap, veh/h	214	668	398	53	805	14	192	106	251	21	281	256
Arrive On Green	0.14	0.37	0.37	0.03	0.26	0.26	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1497	1798	1070	1521	3054	51	987	548	1296	106	1449	1318
Grp Volume(v), veh/h	272	219	209	29	324	340	283	0	29	103	0	362
Grp Sat Flow(s),veh/h/ln	1497	1494	1375	1521	1518	1588	1536	0	1296	1554	0	1318
Q Serve(g_s), s	12.5	9.4	9.9	1.6	17.5	17.5	15.9	0.0	1.6	5.0	0.0	17.0
Cycle Q Clear(g_c), s	12.5	9.4	9.9	1.6	17.5	17.5	15.9	0.0	1.6	5.0	0.0	17.0
Prop In Lane	1.00		0.78	1.00		0.03	0.64		1.00	0.07		1.00
Lane Grp Cap(c), veh/h	214	555	511	53	400	419	298	0	251	302	0	256
V/C Ratio(X)	1.27	0.39	0.41	0.55	0.81	0.81	0.95	0.00	0.12	0.34	0.00	1.42
Avail Cap(c_a), veh/h	214	716	659	104	615	644	298	0	251	302	0	256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	20.3	20.4	41.6	30.2	30.2	34.9	0.0	29.1	30.5	0.0	35.3
Incr Delay (d2), s/veh	154.1	0.5	0.5	8.6	4.7	4.6	38.7	0.0	0.2	0.7	0.0	208.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.6	5.7	5.5	1.3	10.8	11.2	14.0	0.0	0.9	3.5	0.0	32.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	191.6	20.7	20.9	50.2	34.9	34.8	73.6	0.0	29.3	31.1	0.0	243.7
LnGrp LOS	F	C	C	D	C	C	E	A	C	C	A	F
Approach Vol, veh/h		700			693			312				465
Approach Delay, s/veh		87.2			35.5			69.5				196.6
Approach LOS		F			D			E				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	37.1		21.5	17.0	27.6		21.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.0	42.0		17.0	12.5	35.5		17.0				
Max Q Clear Time (g_c+1), s	13.6	11.9		19.0	14.5	19.5		17.9				
Green Ext Time (p_c), s	0.0	2.7		0.0	0.0	3.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												91.6
HCM 6th LOS												F

Intersection

Intersection Delay, s/veh 61.4
 Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↙		↑			↑
Traffic Vol, veh/h	97	0	169	0	0	803
Future Vol, veh/h	97	0	169	0	0	803
Peak Hour Factor	0.91	0.91	0.91	0.91	0.92	0.92
Heavy Vehicles, %	4	4	3	3	1	1
Mvmt Flow	107	0	186	0	0	873
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.1	10.2	78.4
HCM LOS	B	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	0%
Vol Thru, %	100%	0%	100%
Vol Right, %	0%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	169	97	803
LT Vol	0	97	0
Through Vol	169	0	803
RT Vol	0	0	0
Lane Flow Rate	186	107	873
Geometry Grp	1	1	1
Degree of Util (X)	0.266	0.188	1.088
Departure Headway (Hd)	5.315	6.62	4.487
Convergence, Y/N	Yes	Yes	Yes
Cap	680	546	812
Service Time	3.315	4.62	2.531
HCM Lane V/C Ratio	0.274	0.196	1.075
HCM Control Delay	10.2	11.1	78.4
HCM Lane LOS	B	B	F
HCM 95th-tile Q	1.1	0.7	22.9

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	141	79	81	227	207	90
Future Vol, veh/h	141	79	81	227	207	90
Conflicting Peds, #/hr	3	1	1	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	4	4
Mvmt Flow	147	82	84	236	216	94

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	673	267	313	0	-	0
Stage 1	266	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.11	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.209	-	-	-
Pot Cap-1 Maneuver	419	769	1253	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	385	767	1250	-	-	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	2.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1250	-	469	-	-
HCM Lane V/C Ratio	0.068	-	0.489	-	-
HCM Control Delay (s)	8.1	0	19.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.6	-	-

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	126	172	3	2	118	9	4	10	1	5	18	96
Future Vol, veh/h	126	172	3	2	118	9	4	10	1	5	18	96
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	6	6	6
Mvmt Flow	158	215	4	3	148	11	5	13	1	6	23	120
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.9	9.1	8.6	9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	42%	2%	4%
Vol Thru, %	67%	57%	91%	15%
Vol Right, %	7%	1%	7%	81%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	301	129	119
LT Vol	4	126	2	5
Through Vol	10	172	118	18
RT Vol	1	3	9	96
Lane Flow Rate	19	376	161	149
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.481	0.212	0.198
Departure Headway (Hd)	5.374	4.607	4.734	4.791
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	661	779	755	745
Service Time	3.446	2.65	2.785	2.844
HCM Lane V/C Ratio	0.029	0.483	0.213	0.2
HCM Control Delay	8.6	11.9	9.1	9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	2.6	0.8	0.7

Intersection

Intersection Delay, s/veh 14.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	71	240	57	72	4	258	65	68	3	92	19
Future Vol, veh/h	18	71	240	57	72	4	258	65	68	3	92	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	0	0	0	3	3	3	6	6	6
Mvmt Flow	19	76	258	61	77	4	277	70	73	3	99	20
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	15.3	12.5	14.8	11.5
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	1%	43%	100%	0%
Vol Thru, %	0%	49%	0%	23%	54%	0%	83%
Vol Right, %	0%	51%	0%	77%	3%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	258	133	16	313	133	3	111
LT Vol	258	0	16	2	57	3	0
Through Vol	0	65	0	71	72	0	92
RT Vol	0	68	0	240	4	0	19
Lane Flow Rate	277	143	17	336	143	3	120
Geometry Grp	5	5	5	5	4b	5	5
Degree of Util (X)	0.525	0.236	0.034	0.549	0.272	0.006	0.225
Departure Headway (Hd)	6.814	5.942	6.925	5.877	6.837	7.392	6.76
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	602	515	612	522	481	528
Service Time	4.58	3.707	4.695	3.646	4.922	5.179	4.546
HCM Lane V/C Ratio	0.526	0.238	0.033	0.549	0.274	0.006	0.227
HCM Control Delay	16.9	10.6	9.9	15.6	12.5	10.2	11.5
HCM Lane LOS	C	B	A	C	B	B	B
HCM 95th-tile Q	3	0.9	0.1	3.3	1.1	0	0.9

MOVEMENT SUMMARY

Site: 74 [Wheaton Way & Manette Bridge (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
East: Harkins St (WB)															
6	T1	All MCs	278	1.8	278	1.8	0.387	8.4	LOS A	2.5	62.5	0.73	0.69	0.73	33.7
16	R2	All MCs	39	1.8	39	1.8	0.387	8.2	LOS A	2.5	62.5	0.73	0.69	0.73	33.4
Approach			317	1.8	317	1.8	0.387	8.4	LOS A	2.5	62.5	0.73	0.69	0.73	33.6
North: Wheaton Way (SB)															
7u	U	All MCs	1	2.4	1	2.4	0.356	12.6	LOS B	2.3	57.5	0.54	0.60	0.54	33.8
7	L2	All MCs	44	2.4	44	2.4	0.356	10.6	LOS B	2.3	57.5	0.54	0.60	0.54	33.8
14	R2	All MCs	324	2.4	324	2.4	0.356	6.1	LOS A	2.3	57.5	0.54	0.60	0.54	34.1
Approach			369	2.4	369	2.4	0.356	6.6	LOS A	2.3	57.5	0.54	0.60	0.54	34.1
West: Manette Bridge (EB)															
5	L2	All MCs	589	2.1	589	2.1	0.776	9.7	LOS A	11.6	295.8	0.49	0.51	0.49	32.9
2	T1	All MCs	407	2.1	407	2.1	0.776	5.4	LOS A	11.6	295.8	0.49	0.51	0.49	33.4
Approach			997	2.1	997	2.1	0.776	7.9	LOS A	11.6	295.8	0.49	0.51	0.49	33.1
All Vehicles			1683	2.1	1683	2.1	0.776	7.7	LOS A	11.6	295.8	0.54	0.56	0.54	33.4

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 8:28:50 PM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Baseline + Alt 1.sjp9

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕						↕
Traffic Vol, veh/h	0	0	0	202	21	0	0	0	0	0	1	75
Future Vol, veh/h	0	0	0	202	21	0	0	0	0	0	1	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	6	6	6	0	0	0	1	1	1
Mvmt Flow	0	0	0	227	24	0	0	0	0	0	1	84

Major/Minor	Major2			Minor2		
Conflicting Flow All	0	0	0	-	478	27
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.16	-	-	-	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.254	-	-	-	4.009	3.309
Pot Cap-1 Maneuver	-	-	0	0	488	1051
Stage 1	-	-	0	0	557	-
Stage 2	-	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	0	1051
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-

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

Minor Lane/Major Mvmt	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1051
HCM Lane V/C Ratio	-	-	0.08
HCM Control Delay (s)	-	-	8.7
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	72	363	44	53	215
Future Vol, veh/h	30	72	363	44	53	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	31	75	378	46	55	224

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	735	401	0	0	424
Stage 1	401	-	-	-	-
Stage 2	334	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	390	653	-	-	1146
Stage 1	681	-	-	-	-
Stage 2	730	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	371	653	-	-	1146
Mov Cap-2 Maneuver	371	-	-	-	-
Stage 1	681	-	-	-	-
Stage 2	695	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	534	1146
HCM Lane V/C Ratio	-	-	0.199	0.048
HCM Control Delay (s)	-	-	13.4	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2

Intersection	
Intersection Delay, s/veh	38.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	372	53	13	411	10	87	43	66	53	27	7
Future Vol, veh/h	8	372	53	13	411	10	87	43	66	53	27	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	5	5	5	2	2	2	0	0	0
Mvmt Flow	9	433	62	15	478	12	101	50	77	62	31	8
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	45.5	46.6	16.5	13.5
HCM LOS	E	E	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	44%	100%	0%	100%	0%	61%
Vol Thru, %	22%	0%	88%	0%	98%	31%
Vol Right, %	34%	0%	12%	0%	2%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	196	8	425	13	421	87
LT Vol	87	8	0	13	0	53
Through Vol	43	0	372	0	411	27
RT Vol	66	0	53	0	10	7
Lane Flow Rate	228	9	494	15	490	101
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.461	0.019	0.914	0.031	0.92	0.228
Departure Headway (Hd)	7.286	7.261	6.659	7.298	6.769	8.115
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	492	491	544	488	534	445
Service Time	5.38	5.038	4.436	5.077	4.547	6.115
HCM Lane V/C Ratio	0.463	0.018	0.908	0.031	0.918	0.227
HCM Control Delay	16.5	10.2	46.2	10.3	47.7	13.5
HCM Lane LOS	C	B	E	B	E	B
HCM 95th-tile Q	2.4	0.1	11	0.1	11.1	0.9

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	111	4	227	150	110	0	0	103	280
Future Vol, veh/h	0	0	0	111	4	227	150	110	0	0	103	280
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	2	2	2	2	2	4	4	4
Mvmt Flow	0	0	0	116	4	236	156	115	0	0	107	292

Major/Minor	Minor1	Major1	Major2						
Conflicting Flow All	534	534	115	107	0	-	-	-	0
Stage 1	427	427	-	-	-	-	-	-	-
Stage 2	107	107	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	507	452	937	1484	-	0	0	-	-
Stage 1	658	585	-	-	-	0	0	-	-
Stage 2	917	807	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	450	0	937	1484	-	-	-	-	-
Mov Cap-2 Maneuver	450	0	-	-	-	-	-	-	-
Stage 1	584	0	-	-	-	-	-	-	-
Stage 2	917	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1484	-	450	937	-
HCM Lane V/C Ratio	0.105	-	0.266	0.252	-
HCM Control Delay (s)	7.7	0	15.9	10.1	-
HCM Lane LOS	A	A	C	B	-
HCM 95th %tile Q(veh)	0.4	-	1.1	1	-

Intersection												
Int Delay, s/veh	13.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	87	0	362	0	0	0	0	187	23	235	200	0
Future Vol, veh/h	87	0	362	0	0	0	0	187	23	235	200	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	0	0	0	7	7	7	2	2	2
Mvmt Flow	87	0	362	0	0	0	0	187	23	235	200	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	869	880	200	-	0	0	210	0	0
Stage 1	670	670	-	-	-	-	-	-	-
Stage 2	199	210	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	324	287	843	0	-	-	1361	-	0
Stage 1	510	457	-	0	-	-	-	-	0
Stage 2	837	730	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	261	0	843	-	-	-	1361	-	-
Mov Cap-2 Maneuver	261	0	-	-	-	-	-	-	-
Stage 1	510	0	-	-	-	-	-	-	-
Stage 2	675	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28	0	4.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	589	1361	-
HCM Lane V/C Ratio	-	-	0.762	0.173	-
HCM Control Delay (s)	-	-	28	8.2	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	6.9	0.6	-

Intersection												
Int Delay, s/veh	32.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Vol, veh/h	0	456	358	373	746	0	0	0	0	46	0	119
Future Vol, veh/h	0	456	358	373	746	0	0	0	0	46	0	119
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Stop
Storage Length	-	-	175	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	4	4	4
Mvmt Flow	0	490	385	401	802	0	0	0	0	49	0	128

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	-	493	0	0	1851	2097	403
Stage 1	-	-	-	-	-	-	1604	1604	-
Stage 2	-	-	-	-	-	-	247	493	-
Critical Hdwy	-	-	-	4.16	-	-	6.88	6.58	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	5.88	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.88	5.58	-
Follow-up Hdwy	-	-	-	2.23	-	-	3.54	4.04	3.34
Pot Cap-1 Maneuver	0	-	0	1060	-	0	64	50	591
Stage 1	0	-	0	-	-	0	147	160	-
Stage 2	0	-	0	-	-	0	765	540	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1060	-	-	~ 20	0	590
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 20	0	-
Stage 1	-	-	-	-	-	-	147	0	-
Stage 2	-	-	-	-	-	-	243	0	-

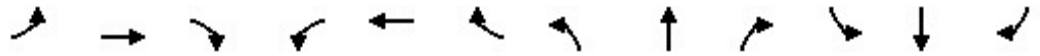
Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	\$ 308.5
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1060	-	20	590
HCM Lane V/C Ratio	-	0.378	-	2.473	0.217
HCM Control Delay (s)	-	10.4	1.8	1073.4	12.8
HCM Lane LOS	-	B	A	F	B
HCM 95th %tile Q(veh)	-	1.8	-	6.5	0.8

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↗			
Traffic Volume (veh/h)	184	334	0	0	859	282	453	0	279	0	0	0
Future Volume (veh/h)	184	334	0	0	859	282	453	0	279	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1585	1585	0	0	1585	1585	1560	1560	1560			
Adj Flow Rate, veh/h	196	355	0	0	914	0	482	0	297			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	4	4	4			
Cap, veh/h	0	1299	0	0	1299		589	0	521			
Arrive On Green	0.00	0.43	0.00	0.00	0.43	0.00	0.40	0.00	0.40			
Sat Flow, veh/h	0	3091	0	0	3170	0	1485	0	1315			
Grp Volume(v), veh/h	0	355	0	0	914	0	482	0	297			
Grp Sat Flow(s),veh/h/ln	0	1506	0	0	1506	0	1485	0	1315			
Q Serve(g_s), s	0.0	4.1	0.0	0.0	13.2	0.0	15.5	0.0	9.4			
Cycle Q Clear(g_c), s	0.0	4.1	0.0	0.0	13.2	0.0	15.5	0.0	9.4			
Prop In Lane	0.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1299	0	0	1299		589	0	521			
V/C Ratio(X)	0.00	0.27	0.00	0.00	0.70		0.82	0.00	0.57			
Avail Cap(c_a), veh/h	0	4141	0	0	3633		840	0	744			
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	9.8	0.0	0.0	12.4	0.0	14.4	0.0	12.6			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.7	0.0	4.3	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(95%),veh/ln	0.0	2.0	0.0	0.0	6.5	0.0	8.5	0.0	4.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.9	0.0	0.0	13.1	0.0	18.7	0.0	13.5			
LnGrp LOS	A	A	A	A	B		B	A	B			
Approach Vol, veh/h		355			914			779				
Approach Delay, s/veh		9.9			13.1			16.8				
Approach LOS		A			B			B				
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	27.6		25.8		27.6						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	5.0	64.4		30.2		73.4						
Max Q Clear Time (g_c+I1), s	0.0	15.2		17.5		6.1						
Green Ext Time (p_c), s	0.0	7.8		3.5		2.5						

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	55	0	33	39	1	24	43	1670	51	42	1463	45
Future Volume (veh/h)	55	0	33	39	1	24	43	1670	51	42	1463	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1397	1397	1397	1572	1572	1572	1597	1597	1597	1585	1585	1585
Adj Flow Rate, veh/h	57	0	34	40	1	25	44	1722	53	43	1508	46
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	17	17	17	3	3	3	1	1	1	2	2	2
Cap, veh/h	142	0	114	142	5	124	284	2392	73	226	2374	72
Arrive On Green	0.10	0.00	0.10	0.10	0.10	0.10	0.03	0.80	0.80	0.03	0.80	0.80
Sat Flow, veh/h	1182	0	1141	1323	50	1244	1521	3004	92	1509	2982	91
Grp Volume(v), veh/h	57	0	34	40	0	26	44	866	909	43	760	794
Grp Sat Flow(s),veh/h/ln	1182	0	1141	1323	0	1294	1521	1518	1578	1509	1506	1567
Q Serve(g_s), s	7.3	0.0	4.3	4.5	0.0	2.9	0.8	42.3	43.1	0.8	32.4	32.7
Cycle Q Clear(g_c), s	10.1	0.0	4.3	8.8	0.0	2.9	0.8	42.3	43.1	0.8	32.4	32.7
Prop In Lane	1.00		1.00	1.00		0.96	1.00		0.06	1.00		0.06
Lane Grp Cap(c), veh/h	142	0	114	142	0	129	284	1208	1257	226	1199	1248
V/C Ratio(X)	0.40	0.00	0.30	0.28	0.00	0.20	0.15	0.72	0.72	0.19	0.63	0.64
Avail Cap(c_a), veh/h	267	0	234	281	0	265	340	1208	1257	282	1199	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.19	0.19	0.19	0.75	0.75	0.75
Uniform Delay (d), s/veh	69.2	0.0	65.2	69.2	0.0	64.5	6.4	7.5	7.6	9.6	6.6	6.6
Incr Delay (d2), s/veh	1.8	0.0	1.4	1.1	0.0	0.8	0.0	0.7	0.7	0.3	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.4	2.9	0.0	1.8	0.6	14.7	15.5	0.9	14.2	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	0.0	66.6	70.3	0.0	65.3	6.5	8.3	8.3	9.9	8.5	8.5
LnGrp LOS	E	A	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		91			66			1819			1597	
Approach Delay, s/veh		69.3			68.3			8.3			8.5	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	128.2			19.6	8.3	128.2		19.6				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	86.0			32.0	10.0	102.0		32.0				
Max Q Clear Time (g_c+1/2), s	45.1			12.1	2.8	34.7		10.8				
Green Ext Time (p_c), s	0.0	21.0		0.3	0.0	19.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	970	480	37	495	4	610	141	33	225	559	53
Future Volume (veh/h)	76	970	480	37	495	4	610	141	33	225	559	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1522	1522	1522	1510	1510	1510	1585	1585	1585
Adj Flow Rate, veh/h	79	1010	0	39	516	4	635	147	34	234	582	55
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	7	7	7	8	8	8	2	2	2
Cap, veh/h	50	651		46	627	5	227	249	58	257	356	302
Arrive On Green	0.03	0.42	0.00	0.03	0.42	0.42	0.16	0.21	0.21	0.17	0.22	0.22
Sat Flow, veh/h	1485	1560	1322	1450	1508	12	1438	1186	274	1509	1585	1343
Grp Volume(v), veh/h	79	1010	0	39	0	520	635	0	181	234	582	55
Grp Sat Flow(s),veh/h/ln	1485	1560	1322	1450	0	1520	1438	0	1460	1509	1585	1343
Q Serve(g_s), s	4.0	50.0	0.0	3.2	0.0	36.4	18.9	0.0	13.4	18.2	26.9	4.0
Cycle Q Clear(g_c), s	4.0	50.0	0.0	3.2	0.0	36.4	18.9	0.0	13.4	18.2	26.9	4.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	50	651		46	0	632	227	0	306	257	356	302
V/C Ratio(X)	1.59	1.55		0.85	0.00	0.82	2.80	0.00	0.59	0.91	1.64	0.18
Avail Cap(c_a), veh/h	50	651		48	0	641	227	0	306	285	356	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	34.9	0.0	57.7	0.0	31.1	50.4	0.0	42.7	48.8	46.4	37.6
Incr Delay (d2), s/veh	342.6	255.6	0.0	72.7	0.0	9.3	821.9	0.0	2.6	29.5	298.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	1.2	99.0	0.0	3.7	0.0	20.6	91.8	0.0	8.6	13.9	62.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	400.5	290.5	0.0	130.4	0.0	40.4	872.3	0.0	45.3	78.4	344.8	37.8
LnGrp LOS	F	F		F	A	D	F	A	D	E	F	D
Approach Vol, veh/h		1089			559			816			871	
Approach Delay, s/veh		298.5			46.7			688.9			253.8	
Approach LOS		F			D			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	55.4	24.0	32.0	8.6	55.2	25.8	30.2				
Change Period (Y+Rc), s	4.6	5.4	5.1	5.1	4.6	* 5.4	5.4	* 5.1				
Max Green Setting (Gmax), s	4.0	50.0	18.9	26.9	4.0	* 51	22.6	* 23				
Max Q Clear Time (g_c+1), s	15.2	52.0	20.9	28.9	6.0	38.4	20.2	15.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.1	0.1	0.4				

Intersection Summary

HCM 6th Ctrl Delay	340.1
HCM 6th LOS	F

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	27	306	92	33	277	49	598	13	109	671	3
Future Volume (veh/h)	546	27	306	92	33	277	49	598	13	109	671	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1572	1572	1572	1560	1560	1560	1510	1510	1510	1560	1560	1560
Adj Flow Rate, veh/h	593	29	333	100	36	0	53	650	14	118	729	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	8	8	8	4	4	4
Cap, veh/h	553	31	351	185	67		106	675	572	159	728	617
Arrive On Green	0.32	0.28	0.28	0.08	0.04	0.00	0.04	0.45	0.45	0.06	0.47	0.47
Sat Flow, veh/h	1497	108	1241	1485	1560	1322	1438	1510	1279	1485	1560	1322
Grp Volume(v), veh/h	593	0	362	100	36	0	53	650	14	118	729	3
Grp Sat Flow(s),veh/h/ln	1497	0	1349	1485	1560	1322	1438	1510	1279	1485	1560	1322
Q Serve(g_s), s	44.0	0.0	36.6	8.8	3.1	0.0	2.7	58.2	0.9	5.9	65.0	0.2
Cycle Q Clear(g_c), s	44.0	0.0	36.6	8.8	3.1	0.0	2.7	58.2	0.9	5.9	65.0	0.2
Prop In Lane	1.00		0.92	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	553	0	381	185	67		106	675	572	159	728	617
V/C Ratio(X)	1.07	0.00	0.95	0.54	0.54		0.50	0.96	0.02	0.74	1.00	0.00
Avail Cap(c_a), veh/h	553	0	381	199	67		114	675	572	210	728	617
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	0.0	49.0	57.9	65.2	0.0	33.1	37.4	21.5	32.1	37.1	19.8
Incr Delay (d2), s/veh	59.2	0.0	33.2	2.5	8.1	0.0	3.6	25.6	0.0	9.4	33.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	6.7	0.0	22.5	6.3	2.6	0.0	1.9	34.6	0.5	4.5	40.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.1	0.0	82.1	60.4	73.3	0.0	36.8	63.0	21.5	41.5	70.7	19.8
LnGrp LOS	F	A	F	E	E		D	E	C	D	F	B
Approach Vol, veh/h		955			136			717			850	
Approach Delay, s/veh		95.1			63.8			60.2			66.5	
Approach LOS		F			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.5	68.3	14.6	43.9	9.7	71.0	48.0	10.5				
Change Period (Y+Rc), s	4.5	6.0	4.0	4.5	4.5	6.0	4.0	4.5				
Max Green Setting (Gmax), s	12.8	58.2	12.0	38.0	6.0	65.0	44.0	6.0				
Max Q Clear Time (g_c+1), s	17.9	60.2	10.8	38.6	4.7	67.0	46.0	5.1				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	75.0
HCM 6th LOS	E

Notes

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

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	28	115	35	7	199	17	79	25	15	8	23	12
Future Volume (veh/h)	28	115	35	7	199	17	79	25	15	8	23	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1585	1585	1585	1535	1535	1535
Adj Flow Rate, veh/h	30	124	38	8	214	18	85	27	16	9	25	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	6	6	6
Cap, veh/h	251	301	84	196	401	33	547	144	55	256	285	123
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	138	1064	297	24	1415	117	780	465	178	122	921	399
Grp Volume(v), veh/h	192	0	0	240	0	0	128	0	0	47	0	0
Grp Sat Flow(s),veh/h/ln1499	0	0	0	1556	0	0	1423	0	0	1442	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	0.0	2.6	0.0	0.0	1.3	0.0	0.0	0.5	0.0	0.0
Prop In Lane	0.16		0.20	0.03		0.07	0.66		0.12	0.19		0.28
Lane Grp Cap(c), veh/h	636	0	0	630	0	0	745	0	0	665	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.38	0.00	0.00	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	2526	0	0	2637	0	0	2524	0	0	2466	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.8	0.0	0.0	6.0	0.0	0.0	5.1	0.0	0.0	4.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.6	0.0	0.0	0.0	0.8	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	0.0	0.0	6.3	0.0	0.0	5.2	0.0	0.0	4.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		192			240			128				47
Approach Delay, s/veh		6.0			6.3			5.2				4.9
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.1		9.6		10.1		9.6				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		31.0		31.0		31.0				
Max Q Clear Time (g_c+I1), s		3.3		4.0		2.5		4.6				
Green Ext Time (p_c), s		0.7		1.2		0.2		1.5				
Intersection Summary												
HCM 6th Ctrl Delay					5.9							
HCM 6th LOS					A							

MOVEMENT SUMMARY

 Site: 328 [SR 3 & Ariport Rd (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing RAB
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] ft				
South: SR 3															
8	T1	All MCs	1615	4.0	1615	4.0	1.391	185.1	LOS F	174.7	4506.9	1.00	3.35	5.26	9.5
18	R2	All MCs	83	4.0	83	4.0	1.391	184.9	LOS F	174.7	4506.9	1.00	3.35	5.26	8.9
Approach			1698	4.0	1698	4.0	1.391	185.1	LOS F	174.7	4506.9	1.00	3.35	5.26	9.5
East: Ariport Rd															
1	L2	All MCs	203	8.0	203	8.0	1.928	441.9	LOS F	97.3	2588.5	1.00	4.53	7.65	4.4
16	R2	All MCs	385	8.0	385	8.0	1.928	437.9	LOS F	97.3	2588.5	1.00	4.53	7.65	4.4
Approach			588	8.0	588	8.0	1.928	439.3	LOS F	97.3	2588.5	1.00	4.53	7.65	4.4
North: SR 3															
7	L2	All MCs	157	5.0	157	5.0	0.880	12.2	LOS D	15.0	390.8	0.87	0.55	0.88	28.0
4	T1	All MCs	952	5.0	952	5.0	0.880	6.5	LOS D	15.0	390.8	0.87	0.55	0.88	35.5
Approach			1109	5.0	1109	5.0	0.880	7.3	LOS A	15.0	390.8	0.87	0.55	0.88	34.2
All Vehicles			3395	5.0	3395	5.0	1.928	171.1	LOS F	174.7	4506.9	0.96	2.64	4.24	9.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Thursday, June 27, 2024 10:46:12 AM

Project: C:\Users\Daniel Hodun\TSD\Dropbox\Daniel Hodun\TSD\Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Baseline + Alt 1.sip9

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑		↑		↑	↑↑	↑	
Traffic Volume (veh/h)	0	346	165	268	214	0	33	0	153	504	124	7
Future Volume (veh/h)	0	346	165	268	214	0	33	0	153	504	124	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1547	1547	1522	1522	0	1384	0	1384	1560	1560	1560
Adj Flow Rate, veh/h	0	402	192	312	249	0	38	0	0	586	144	8
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	5	5	7	7	0	18	0	18	4	4	4
Cap, veh/h	0	1528	682	361	1983	0	0	0	0	690	350	19
Arrive On Green	0.00	0.52	0.52	0.21	1.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	0	3017	1311	2812	2968	0		0		2882	1464	81
Grp Volume(v), veh/h	0	402	192	312	249	0		0.0		586	0	152
Grp Sat Flow(s),veh/h/ln	0	1470	1311	1406	1446	0				1441	0	1545
Q Serve(g_s), s	0.0	9.1	9.9	12.8	0.0	0.0				23.3	0.0	10.0
Cycle Q Clear(g_c), s	0.0	9.1	9.9	12.8	0.0	0.0				23.3	0.0	10.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.05
Lane Grp Cap(c), veh/h	0	1528	682	361	1983	0				690	0	370
V/C Ratio(X)	0.00	0.26	0.28	0.86	0.13	0.00				0.85	0.00	0.41
Avail Cap(c_a), veh/h	0	1528	682	434	1983	0				973	0	521
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.0	16.2	46.1	0.0	0.0				43.6	0.0	38.5
Incr Delay (d2), s/veh	0.0	0.4	1.0	15.3	0.1	0.0				5.6	0.0	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
%ile BackOfQ(95%),veh/ln	0.0	5.6	5.6	8.4	0.1	0.0				13.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.4	17.2	61.4	0.1	0.0				49.2	0.0	39.4
LnGrp LOS	A	B	B	E	A	A				D	A	D
Approach Vol, veh/h		594			561							738
Approach Delay, s/veh		16.7			34.2							47.2
Approach LOS		B			C							D
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			19.9	66.9		33.2		86.8				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			18.5	31.5		40.5		54.5				
Max Q Clear Time (g_c+I1), s			14.8	11.9		25.3		2.0				
Green Ext Time (p_c), s			0.6	3.8		3.4		2.1				
Intersection Summary												
HCM 6th Ctrl Delay			33.8									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖↑↑	↑↑↑		↖	↑	↗	↖	↗	
Traffic Volume (veh/h)	57	959	41	29	1064	40	47	27	53	89	21	158
Future Volume (veh/h)	57	959	41	29	1064	40	47	27	53	89	21	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	0.98		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1560	1560	1560	1572	1572	1572	1572	1572	1572	1560	1560	1560
Adj Flow Rate, veh/h	62	1042	45	32	1157	43	51	29	58	97	23	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	3	3	3	3	3	3	4	4	4
Cap, veh/h	455	1074	464	391	1349	50	121	118	98	312	27	199
Arrive On Green	0.61	0.72	0.72	0.26	0.32	0.32	0.04	0.07	0.07	0.13	0.17	0.17
Sat Flow, veh/h	1485	2964	1281	1497	4243	158	1497	1572	1311	1485	158	1182
Grp Volume(v), veh/h	62	1042	45	32	780	420	51	29	58	97	0	195
Grp Sat Flow(s),veh/h/ln	1485	1482	1281	1497	1431	1539	1497	1572	1311	1485	0	1340
Q Serve(g_s), s	2.1	39.1	1.2	1.9	30.7	30.7	0.0	2.1	5.1	0.0	0.0	17.0
Cycle Q Clear(g_c), s	2.1	39.1	1.2	1.9	30.7	30.7	0.0	2.1	5.1	0.0	0.0	17.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	455	1074	464	391	910	489	121	118	98	312	0	226
V/C Ratio(X)	0.14	0.97	0.10	0.08	0.86	0.86	0.42	0.25	0.59	0.31	0.00	0.86
Avail Cap(c_a), veh/h	455	1111	480	391	1025	552	160	472	393	312	0	413
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	15.9	10.7	33.5	38.4	38.4	55.2	52.3	53.7	43.6	0.0	48.5
Incr Delay (d2), s/veh	0.1	16.5	0.3	0.1	10.3	17.5	4.9	1.1	5.6	0.6	0.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	11.4	0.7	1.3	17.5	19.8	3.0	1.6	3.3	4.7	0.0	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	32.4	11.0	33.5	48.7	55.9	60.1	53.4	59.3	44.2	0.0	58.0
LnGrp LOS	B	C	B	C	D	E	E	D	E	D	A	E
Approach Vol, veh/h		1149			1232			138			292	
Approach Delay, s/veh		30.7			50.7			58.4			53.4	
Approach LOS		C			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	14.0	36.4	48.5	9.9	25.2	41.7	43.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	30.0	36.0	10.0	45.0	8.0	37.0	12.0	43.0				
Max Q Clear Time (g_c+1), s	11.0	7.1	3.9	41.1	2.0	19.0	4.1	32.7				
Green Ext Time (p_c), s	0.1	0.3	0.0	2.4	0.1	1.1	0.1	5.4				

Intersection Summary

HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

MOVEMENT SUMMARY

Site: 8 [Kitsap Way & Marine Dr (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h	%	v/c	sec							mph
South: Adele Ave (NB)															
3	L2	All MCs	51	3.0	51	3.0	0.211	9.0	LOS A	0.8	21.6	0.66	0.73	0.66	26.2
8	T1	All MCs	29	3.0	29	3.0	0.211	4.3	LOS A	0.8	21.6	0.66	0.73	0.66	23.3
18	R2	All MCs	58	3.0	58	3.0	0.211	4.9	LOS A	0.8	21.6	0.66	0.73	0.66	26.4
Approach			138	3.0	138	3.0	0.211	6.3	LOS A	0.8	21.6	0.66	0.73	0.66	25.6
East: Kitsap Way (WB)															
1	L2	All MCs	32	3.0	32	3.0	0.437	9.4	LOS A	3.1	79.4	0.42	0.43	0.42	26.9
6	T1	All MCs	1157	3.0	1157	3.0	0.437	4.2	LOS A	3.2	81.3	0.40	0.42	0.40	31.7
16	R2	All MCs	43	3.0	43	3.0	0.437	4.3	LOS A	3.2	81.3	0.39	0.41	0.39	27.2
Approach			1232	3.0	1232	3.0	0.437	4.3	LOS A	3.2	81.3	0.40	0.42	0.40	31.3
North: Marine Dr (SB)															
7	L2	All MCs	97	4.0	97	4.0	0.455	10.5	LOS B	2.2	57.0	0.73	0.87	0.87	25.8
4	T1	All MCs	23	4.0	23	4.0	0.455	5.9	LOS A	2.2	57.0	0.73	0.87	0.87	23.0
14	R2	All MCs	172	4.0	172	4.0	0.455	6.5	LOS A	2.2	57.0	0.73	0.87	0.87	26.0
Approach			291	4.0	291	4.0	0.455	7.8	LOS A	2.2	57.0	0.73	0.87	0.87	25.6
West: Kitsap Way (EB)															
5	L2	All MCs	62	4.0	62	4.0	0.420	9.4	LOS A	3.0	78.3	0.45	0.46	0.45	26.8
2	T1	All MCs	1042	4.0	1042	4.0	0.420	4.2	LOS A	3.1	81.0	0.43	0.44	0.43	31.5
12	R2	All MCs	45	4.0	45	4.0	0.420	4.3	LOS A	3.1	81.0	0.42	0.42	0.42	27.1
Approach			1149	4.0	1149	4.0	0.420	4.5	LOS A	3.1	81.0	0.43	0.44	0.43	31.1
All Vehicles			2810	3.5	2810	3.5	0.455	4.8	LOS A	3.2	81.3	0.46	0.49	0.48	30.2

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 10:42:05 AM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9

MOVEMENT SUMMARY

Site: 9 [Kitsap Way & Corbett Dr (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h	%	v/c	sec			ft				mph
South: Wilbert Ave (NB)															
3	L2	All MCs	13	22.0	13	22.0	0.068	10.3	LOS B	0.2	6.3	0.59	0.71	0.59	25.7
8	T1	All MCs	12	22.0	12	22.0	0.068	5.3	LOS A	0.2	6.3	0.59	0.71	0.59	23.1
18	R2	All MCs	10	22.0	10	22.0	0.068	6.2	LOS A	0.2	6.3	0.59	0.71	0.59	26.0
Approach			34	22.0	34	22.0	0.068	7.4	LOS A	0.2	6.3	0.59	0.71	0.59	24.8
East: Kitsap Way (WB)															
1	L2	All MCs	30	3.0	30	3.0	0.386	8.8	LOS A	2.7	68.9	0.22	0.35	0.22	27.4
6	T1	All MCs	1134	3.0	1134	3.0	0.386	3.3	LOS A	2.7	69.7	0.21	0.34	0.21	32.4
16	R2	All MCs	9	3.0	9	3.0	0.386	3.5	LOS A	2.7	69.7	0.21	0.33	0.21	27.7
Approach			1173	3.0	1173	3.0	0.386	3.5	LOS A	2.7	69.7	0.22	0.34	0.22	32.2
North: Corbett Dr (SB)															
7	L2	All MCs	24	0.0	24	0.0	0.127	8.4	LOS A	0.5	12.0	0.59	0.68	0.59	26.5
4	T1	All MCs	1	0.0	1	0.0	0.127	3.5	LOS A	0.5	12.0	0.59	0.68	0.59	23.6
14	R2	All MCs	72	0.0	72	0.0	0.127	4.4	LOS A	0.5	12.0	0.59	0.68	0.59	26.7
Approach			97	0.0	97	0.0	0.127	5.4	LOS A	0.5	12.0	0.59	0.68	0.59	26.7
West: Kitsap Way (EB)															
5	L2	All MCs	17	4.0	17	4.0	0.383	8.9	LOS A	2.6	66.1	0.23	0.35	0.23	27.4
2	T1	All MCs	1128	4.0	1128	4.0	0.383	3.4	LOS A	2.6	66.7	0.23	0.34	0.23	32.3
12	R2	All MCs	3	4.0	3	4.0	0.383	3.5	LOS A	2.6	66.7	0.22	0.33	0.22	27.7
Approach			1148	4.0	1148	4.0	0.383	3.5	LOS A	2.6	66.7	0.23	0.34	0.23	32.2
All Vehicles			2453	3.6	2453	3.6	0.386	3.6	LOS A	2.7	69.7	0.24	0.36	0.24	31.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 10:40:05 AM

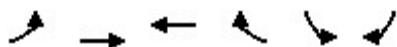
Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9

HCM 6th Signalized Intersection Summary

21: Burwell St (SR 304) & Warren Ave (SR 303)

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↗	↘	↘
Traffic Volume (veh/h)	537	295	228	46	82	517
Future Volume (veh/h)	537	295	228	46	82	517
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1585	1585	1522	1522	1547	1547
Adj Flow Rate, veh/h	559	307	238	48	85	539
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	7	7	5	5
Cap, veh/h	615	613	280	234	397	887
Arrive On Green	0.41	0.41	0.18	0.18	0.27	0.27
Sat Flow, veh/h	1509	1585	1522	1269	1474	1311
Grp Volume(v), veh/h	559	307	238	48	85	539
Grp Sat Flow(s),veh/h/ln	1509	1506	1522	1269	1474	1311
Q Serve(g_s), s	37.5	16.3	16.3	3.5	4.8	24.3
Cycle Q Clear(g_c), s	37.5	16.3	16.3	3.5	4.8	24.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	615	613	280	234	397	887
V/C Ratio(X)	0.91	0.50	0.85	0.21	0.21	0.61
Avail Cap(c_a), veh/h	645	643	424	354	397	887
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	30.0	23.8	42.5	37.2	30.5	9.6
Incr Delay (d2), s/veh	17.6	1.4	11.0	0.5	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.0	10.1	11.3	2.0	3.2	21.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.6	25.1	53.4	37.8	31.2	11.7
LnGrp LOS	D	C	D	D	C	B
Approach Vol, veh/h		866	286		624	
Approach Delay, s/veh		39.7	50.8		14.3	
Approach LOS		D	D		B	
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			48.8		34.0	24.8
Change Period (Y+Rc), s			5.0		5.0	5.0
Max Green Setting (Gmax), s			46.0		29.0	30.0
Max Q Clear Time (g_c+I1), s			39.5		26.3	18.3
Green Ext Time (p_c), s			4.3		1.4	1.4
Intersection Summary						
HCM 6th Ctrl Delay			32.6			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

25: Wheaton Way (SR 303) & Sheridan Rd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	96	186	156	27	106	75	890	100	169	1093	19
Future Volume (veh/h)	22	96	186	156	27	106	75	890	100	169	1093	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1585	1585	1585	1535	1535	1535	1572	1572	1572
Adj Flow Rate, veh/h	24	104	59	170	29	42	82	967	45	184	1188	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	3	3	3
Cap, veh/h	232	141	119	254	254	213	385	1089	481	420	1295	22
Arrive On Green	0.04	0.09	0.09	0.11	0.16	0.16	0.22	0.37	0.37	0.37	0.57	0.57
Sat Flow, veh/h	1509	1585	1339	1509	1585	1331	1462	2916	1288	1497	3006	51
Grp Volume(v), veh/h	24	104	59	170	29	42	82	967	45	184	590	618
Grp Sat Flow(s),veh/h/ln	1509	1585	1339	1509	1585	1331	1462	1458	1288	1497	1494	1563
Q Serve(g_s), s	2.0	9.0	4.0	13.9	2.2	2.2	0.4	43.5	2.2	12.9	49.8	49.8
Cycle Q Clear(g_c), s	2.0	9.0	4.0	13.9	2.2	2.2	0.4	43.5	2.2	12.9	49.8	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	232	141	119	254	254	213	385	1089	481	420	643	673
V/C Ratio(X)	0.10	0.74	0.50	0.67	0.11	0.20	0.21	0.89	0.09	0.44	0.92	0.92
Avail Cap(c_a), veh/h	351	249	210	286	272	228	385	1312	580	420	768	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71
Uniform Delay (d), s/veh	53.6	62.2	27.8	48.8	50.3	17.2	42.1	41.1	14.1	35.6	27.7	27.7
Incr Delay (d2), s/veh	0.2	7.4	3.2	5.0	0.2	0.4	0.3	10.8	0.4	0.5	15.5	15.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	7.1	3.8	9.6	1.6	2.4	4.1	24.0	1.9	7.5	24.6	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	69.6	31.0	53.8	50.5	17.6	42.4	51.9	14.5	36.2	43.2	42.7
LnGrp LOS	D	E	C	D	D	B	D	D	B	D	D	D
Approach Vol, veh/h		187			241			1094			1392	
Approach Delay, s/veh		55.4			47.1			49.6			42.0	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.2	57.3	21.0	17.4	36.2	65.3	11.0	27.5				
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	16.0	63.0	19.0	22.0	7.0	72.0	17.0	24.0				
Max Q Clear Time (g_c+1/4), s	14.5	45.5	15.9	11.0	2.4	51.8	4.0	4.2				
Green Ext Time (p_c), s	0.1	6.8	0.1	0.5	0.1	8.5	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			46.2									
HCM 6th LOS			D									

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Volume (veh/h)	0	457	114	194	555	0	0	0	0	154	0	156
Future Volume (veh/h)	0	457	114	194	555	0	0	0	0	154	0	156
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	1597	1597	1585	1585	0				1585	1585	1585
Adj Flow Rate, veh/h	0	497	0	211	603	0				167	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	1	1	2	2	0				2	2	2
Cap, veh/h	0	2175		495	1330	0				327	0	
Arrive On Green	0.00	1.00	0.00	0.72	0.72	0.00				0.22	0.00	0.00
Sat Flow, veh/h	0	3115	1354	624	1928	0				1509	0	1343
Grp Volume(v), veh/h	0	497	0	373	441	0				167	0	0
Grp Sat Flow(s),veh/h/ln	0	1518	1354	1110	1370	0				1509	0	1343
Q Serve(g_s), s	0.0	0.0	0.0	16.5	16.2	0.0				11.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	17.0	16.2	0.0				11.7	0.0	0.0
Prop In Lane	0.00		1.00	0.57		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2175		843	982	0				327	0	
V/C Ratio(X)	0.00	0.23		0.44	0.45	0.00				0.51	0.00	
Avail Cap(c_a), veh/h	0	2175		843	982	0				327	0	
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.96	0.00	0.94	0.94	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.2	7.1	0.0				41.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	1.6	1.4	0.0				5.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	0.1	0.0	7.0	7.9	0.0				8.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	8.8	8.5	0.0				47.0	0.0	0.0
LnGrp LOS	A	A		A	A	A				D	A	
Approach Vol, veh/h		497			814						167	
Approach Delay, s/veh		0.2			8.6						47.0	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		90.0		30.0		90.0						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		86.0		26.0		86.0						
Max Q Clear Time (g_c+I1), s		2.0		13.7		19.0						
Green Ext Time (p_c), s		3.6		0.6		6.9						

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

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

MOVEMENT SUMMARY

Site: 216 [SR 3 & Imperial Way (Site Folder: 2044 AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.	Dist]				mph
			veh/h		veh/h					veh	ft				
South: SR 3															
3	L2	All MCs	211	5.0	211	5.0	0.359	15.3	LOS B	1.6	40.3	0.62	0.84	0.65	27.4
8	T1	All MCs	749	5.0	749	5.0	0.897	16.7	LOS D	12.5	325.2	0.94	1.11	1.64	34.4
18	R2	All MCs	115	5.0	115	5.0	0.897	16.3	LOS D	12.5	325.2	0.94	1.11	1.64	26.8
Approach			1075	5.0	1075	5.0	0.897	16.4	LOS B	12.5	325.2	0.87	1.05	1.45	31.8
East: Imperial Way															
1	L2	All MCs	41	0.0	41	0.0	0.236	8.9	LOS A	1.1	27.6	0.73	0.77	0.73	28.8
6	T1	All MCs	12	0.0	12	0.0	0.236	4.4	LOS A	1.1	27.6	0.73	0.77	0.73	26.6
16	R2	All MCs	88	0.0	88	0.0	0.236	5.0	LOS A	1.1	27.6	0.73	0.77	0.73	29.0
Approach			141	0.0	141	0.0	0.236	6.1	LOS A	1.1	27.6	0.73	0.77	0.73	28.7
North: SR 3															
7	L2	All MCs	358	8.0	358	8.0	0.353	12.9	LOS B	2.2	58.7	0.54	0.67	0.54	28.0
4	T1	All MCs	503	8.0	503	8.0	0.466	7.8	LOS A	3.4	90.7	0.57	0.57	0.57	38.3
14	R2	All MCs	78	8.0	78	8.0	0.466	7.4	LOS A	3.4	90.7	0.57	0.57	0.57	34.4
Approach			939	8.0	939	8.0	0.466	9.7	LOS A	3.4	90.7	0.56	0.61	0.56	33.3
West: Imperial Way															
5	L2	All MCs	169	47.0	169	47.0	0.355	27.8	LOS C	1.5	50.2	0.69	0.88	0.77	26.3
2	T1	All MCs	11	47.0	11	47.0	0.248	11.5	LOS B	0.8	28.9	0.68	0.82	0.68	25.4
12	R2	All MCs	74	47.0	74	47.0	0.248	11.7	LOS B	0.8	28.9	0.68	0.82	0.68	27.5
Approach			254	47.0	254	47.0	0.355	22.4	LOS C	1.5	50.2	0.69	0.86	0.74	26.6
All Vehicles			2408	10.3	2408	10.3	0.897	13.8	LOS B	12.5	325.2	0.72	0.84	0.98	31.5

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 10:41:13 AM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9

HCM 6th Signalized Intersection Summary

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑		↑	↑		↑↑	↑	
Traffic Volume (veh/h)	0	542	481	511	626	0	99	0	291	922	298	12
Future Volume (veh/h)	0	542	481	511	626	0	99	0	291	922	298	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1560	1560	1560	1560	0	1535	1535	1535	1560	1560	1560
Adj Flow Rate, veh/h	0	553	491	521	639	0	101	0	0	941	304	12
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	4	4	4	4	0	6	6	6	4	4	4
Cap, veh/h	0	1072	583	595	1773	0	119	1		1110	348	14
Arrive On Green	0.00	0.36	0.36	0.07	0.20	0.00	0.08	0.00	0.00	0.35	0.23	0.23
Sat Flow, veh/h	0	3042	1313	2882	3042	0	1462	1535	0	2882	1490	59
Grp Volume(v), veh/h	0	553	491	521	639	0	101	0	0	941	0	316
Grp Sat Flow(s),veh/h/ln	0	1482	1313	1441	1482	0	1462	1535	0	1441	0	1548
Q Serve(g_s), s	0.0	22.0	49.9	26.9	27.9	0.0	10.2	0.0	0.0	47.1	0.0	29.5
Cycle Q Clear(g_c), s	0.0	22.0	49.9	26.9	27.9	0.0	10.2	0.0	0.0	47.1	0.0	29.5
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.04
Lane Grp Cap(c), veh/h	0	1072	583	595	1773	0	119	1		1110	0	362
V/C Ratio(X)	0.00	0.52	0.84	0.88	0.36	0.00	0.85	0.00		0.85	0.00	0.87
Avail Cap(c_a), veh/h	0	1072	583	740	1773	0	302	20		1422	0	387
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.65	0.65	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	37.6	37.1	68.0	35.4	0.0	67.9	0.0	0.0	46.7	0.0	55.4
Incr Delay (d2), s/veh	0.0	1.8	13.8	7.3	0.4	0.0	14.8	0.0	0.0	4.0	0.0	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	13.0	24.9	15.5	15.7	0.0	7.7	0.0	0.0	24.1	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.3	50.9	75.3	35.8	0.0	82.7	0.0	0.0	50.7	0.0	74.2
LnGrp LOS	A	D	D	E	D	A	F	A		D	A	E
Approach Vol, veh/h		1044			1160			101			1257	
Approach Delay, s/veh		44.8			53.5			82.7			56.6	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	55.8	0.0	35.5	58.8	16.3	39.5		94.2				
Change Period (Y+Rc), s	3.0	* 4.5	4.5	4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	69.0	* 2	38.5	25.5	31.0	37.5		68.5				
Max Q Clear Time (g_c+I1), s	49.1	0.0	28.9	51.9	12.2	31.5		29.9				
Green Ext Time (p_c), s	3.7	0.0	2.1	0.0	0.2	1.0		5.8				

Intersection Summary

HCM 6th Ctrl Delay	52.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

8: Marine Dr & Kitsap Way (SR 310)

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙↑↑	↑↑↑		↙	↑	↗	↙	↗	
Traffic Volume (veh/h)	196	1594	68	33	1657	96	76	38	67	102	30	150
Future Volume (veh/h)	196	1594	68	33	1657	96	76	38	67	102	30	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1597	1597	1597	1585	1585	1585	1610	1610	1610	1585	1585	1585
Adj Flow Rate, veh/h	204	1660	71	34	1726	100	79	40	70	106	31	156
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	2	2	2
Cap, veh/h	246	1781	773	46	1933	112	160	284	239	276	37	185
Arrive On Green	0.32	1.00	1.00	0.03	0.46	0.46	0.05	0.18	0.18	0.04	0.16	0.16
Sat Flow, veh/h	1521	3035	1318	1509	4182	242	1533	1610	1355	1509	226	1137
Grp Volume(v), veh/h	204	1660	71	34	1190	636	79	40	70	106	0	187
Grp Sat Flow(s),veh/h/ln	1521	1518	1318	1509	1442	1540	1533	1610	1355	1509	0	1363
Q Serve(g_s), s	18.6	0.0	0.0	3.4	56.6	56.8	6.4	3.1	6.7	6.0	0.0	20.0
Cycle Q Clear(g_c), s	18.6	0.0	0.0	3.4	56.6	56.8	6.4	3.1	6.7	6.0	0.0	20.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	246	1781	773	46	1333	712	160	284	239	276	0	222
V/C Ratio(X)	0.83	0.93	0.09	0.74	0.89	0.89	0.49	0.14	0.29	0.38	0.00	0.84
Avail Cap(c_a), veh/h	246	1781	773	91	1423	760	160	360	303	276	0	286
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.8	0.0	0.0	72.1	36.9	37.0	50.0	52.2	53.7	51.8	0.0	60.9
Incr Delay (d2), s/veh	5.6	2.8	0.1	20.9	9.4	16.0	4.9	0.2	0.7	0.9	0.0	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	8.5	1.2	0.0	2.8	28.8	32.1	4.9	2.4	4.2	6.5	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.4	2.8	0.1	93.0	46.3	53.0	55.0	52.4	54.3	52.7	0.0	77.1
LnGrp LOS	D	A	A	F	D	D	D	D	D	D	A	E
Approach Vol, veh/h		1935			1860			189			293	
Approach Delay, s/veh		8.1			49.5			54.2			68.2	
Approach LOS		A			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	32.9	10.5	94.5	14.0	30.9	30.8	74.3				
Change Period (Y+Rc), s	6.0	6.5	6.0	* 6.5	6.0	6.5	6.5	5.0				
Max Green Setting (Gmax), s	6.0	33.5	9.0	* 78	8.0	31.5	12.5	74.0				
Max Q Clear Time (g_c+1/3), s	6.0	8.7	5.4	2.0	8.4	22.0	20.6	58.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	23.6	0.0	0.7	0.0	10.5				

Intersection Summary

HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

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

MOVEMENT SUMMARY

Site: 8 [Kitsap Way & Marine Dr (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] ft				
South: Adele Ave (NB)															
3	L2	All MCs	79	0.0	79	0.0	0.427	13.1	LOS B	2.3	56.6	0.85	0.97	1.00	25.0
8	T1	All MCs	40	0.0	40	0.0	0.427	8.4	LOS A	2.3	56.6	0.85	0.97	1.00	22.4
18	R2	All MCs	70	0.0	70	0.0	0.427	9.0	LOS A	2.3	56.6	0.85	0.97	1.00	25.2
Approach			189	0.0	189	0.0	0.427	10.6	LOS B	2.3	56.6	0.85	0.97	1.00	24.5
East: Kitsap Way (WB)															
1	L2	All MCs	34	2.0	34	2.0	0.746	13.4	LOS B	9.5	242.5	0.83	0.74	0.99	26.1
6	T1	All MCs	1726	2.0	1726	2.0	0.746	7.6	LOS A	9.6	242.9	0.81	0.71	0.94	30.6
16	R2	All MCs	100	2.0	100	2.0	0.746	7.2	LOS A	9.6	242.9	0.79	0.69	0.90	26.4
Approach			1860	2.0	1860	2.0	0.746	7.7	LOS A	9.6	242.9	0.81	0.71	0.94	30.2
North: Marine Dr (SB)															
7	L2	All MCs	106	2.0	106	2.0	0.737	18.5	LOS B	4.9	123.6	0.92	1.16	1.39	23.6
4	T1	All MCs	31	2.0	31	2.0	0.737	13.8	LOS B	4.9	123.6	0.92	1.16	1.39	21.3
14	R2	All MCs	156	2.0	156	2.0	0.737	14.4	LOS B	4.9	123.6	0.92	1.16	1.39	23.8
Approach			294	2.0	294	2.0	0.737	15.8	LOS B	4.9	123.6	0.92	1.16	1.39	23.4
West: Kitsap Way (EB)															
5	L2	All MCs	204	1.0	204	1.0	0.698	10.0	LOS A	7.6	192.3	0.69	0.54	0.69	26.3
2	T1	All MCs	1660	1.0	1660	1.0	0.698	4.7	LOS A	7.9	198.2	0.66	0.50	0.66	30.9
12	R2	All MCs	71	1.0	71	1.0	0.698	4.8	LOS A	7.9	198.2	0.64	0.48	0.64	26.7
Approach			1935	1.0	1935	1.0	0.698	5.3	LOS A	7.9	198.2	0.66	0.51	0.66	30.2
All Vehicles			4278	1.5	4278	1.5	0.746	7.3	LOS A	9.6	242.9	0.75	0.66	0.85	29.3

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 10:58:53 AM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9

MOVEMENT SUMMARY

Site: 9 [Kitsap Way & Corbett Dr (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h	%	v/c	sec			ft				mph
South: Wilbert Ave (NB)															
3	L2	All MCs	68	0.0	68	0.0	0.320	11.2	LOS B	1.5	37.2	0.76	0.86	0.82	25.5
8	T1	All MCs	1	0.0	1	0.0	0.320	6.3	LOS A	1.5	37.2	0.76	0.86	0.82	22.8
18	R2	All MCs	113	0.0	113	0.0	0.320	7.2	LOS A	1.5	37.2	0.76	0.86	0.82	25.7
Approach			182	0.0	182	0.0	0.320	8.7	LOS A	1.5	37.2	0.76	0.86	0.82	25.6
East: Kitsap Way (WB)															
1	L2	All MCs	55	2.0	55	2.0	0.615	9.8	LOS A	5.5	140.0	0.53	0.46	0.53	26.8
6	T1	All MCs	1671	2.0	1671	2.0	0.615	4.2	LOS A	5.6	142.4	0.51	0.44	0.51	31.5
16	R2	All MCs	18	2.0	18	2.0	0.615	4.2	LOS A	5.6	142.4	0.50	0.43	0.50	27.1
Approach			1743	2.0	1743	2.0	0.615	4.4	LOS A	5.6	142.4	0.51	0.44	0.51	31.3
North: Corbett Dr (SB)															
7	L2	All MCs	9	2.0	9	2.0	0.254	10.9	LOS B	1.1	28.6	0.77	0.82	0.77	26.0
4	T1	All MCs	1	2.0	1	2.0	0.254	6.0	LOS A	1.1	28.6	0.77	0.82	0.77	23.1
14	R2	All MCs	114	2.0	114	2.0	0.254	6.9	LOS A	1.1	28.6	0.77	0.82	0.77	26.2
Approach			125	2.0	125	2.0	0.254	7.2	LOS A	1.1	28.6	0.77	0.82	0.77	26.1
West: Kitsap Way (EB)															
5	L2	All MCs	85	1.0	85	1.0	0.582	9.0	LOS A	5.5	139.1	0.36	0.38	0.36	27.1
2	T1	All MCs	1677	1.0	1677	1.0	0.582	3.5	LOS A	5.6	139.9	0.34	0.37	0.34	32.0
12	R2	All MCs	18	1.0	18	1.0	0.582	3.6	LOS A	5.6	139.9	0.33	0.35	0.33	27.5
Approach			1779	1.0	1779	1.0	0.582	3.8	LOS A	5.6	139.9	0.34	0.37	0.34	31.7
All Vehicles			3830	1.4	3830	1.4	0.615	4.4	LOS A	5.6	142.4	0.45	0.44	0.46	30.9

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 10:59:32 AM

Project: C:\Users\Daniel Hodun\TSDropbox\Daniel Hodun\TSDProjects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9

HCM 6th Signalized Intersection Summary

21: Burwell St (SR 304) & Warren Ave (SR 303)

07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↕	↕	↕
Traffic Volume (veh/h)	467	484	514	123	143	355
Future Volume (veh/h)	467	484	514	123	143	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1585	1585	1597	1597	1560	1560
Adj Flow Rate, veh/h	497	515	547	131	152	378
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	1	1	4	4
Cap, veh/h	518	586	547	678	248	704
Arrive On Green	0.37	0.37	0.34	0.34	0.17	0.17
Sat Flow, veh/h	1416	1683	1597	1322	1485	1322
Grp Volume(v), veh/h	531	481	547	131	152	378
Grp Sat Flow(s),veh/h/ln	1514	1506	1597	1322	1485	1322
Q Serve(g_s), s	41.1	35.6	41.0	6.5	11.4	20.0
Cycle Q Clear(g_c), s	41.1	35.6	41.0	6.5	11.4	20.0
Prop In Lane	0.94			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	554	551	547	678	248	704
V/C Ratio(X)	0.96	0.87	1.00	0.19	0.61	0.54
Avail Cap(c_a), veh/h	556	553	547	678	248	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	35.4	39.4	16.0	46.3	17.8
Incr Delay (d2), s/veh	28.5	15.2	38.7	0.2	7.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	26.7	21.8	29.5	5.1	8.3	17.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	65.7	50.7	78.1	16.2	53.9	19.6
LnGrp LOS	E	D	F	B	D	B
Approach Vol, veh/h		1012	678		530	
Approach Delay, s/veh		58.5	66.1		29.4	
Approach LOS		E	E		C	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				48.8	25.0	46.0
Change Period (Y+Rc), s				5.0	5.0	5.0
Max Green Setting (Gmax), s				44.0	20.0	41.0
Max Q Clear Time (g_c+I1), s				43.1	22.0	43.0
Green Ext Time (p_c), s				0.7	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			53.9			
HCM 6th LOS			D			

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

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	65	147	156	73	84	247	1785	155	238	1054	39
Future Volume (veh/h)	54	65	147	156	73	84	247	1785	155	238	1054	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1585	1585	1585	1597	1597	1597	1585	1585	1585	1572	1572	1572
Adj Flow Rate, veh/h	56	67	9	161	75	5	255	1840	108	245	1087	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	3	3	3
Cap, veh/h	154	126	498	165	127	260	519	1800	864	170	1236	43
Arrive On Green	0.04	0.08	0.08	0.05	0.08	0.08	0.29	0.60	0.60	0.11	0.42	0.42
Sat Flow, veh/h	1509	1585	1328	1521	1597	1338	1509	3011	1342	1497	2944	103
Grp Volume(v), veh/h	56	67	9	161	75	5	255	1840	108	245	551	574
Grp Sat Flow(s),veh/h/ln	1509	1585	1328	1521	1597	1338	1509	1506	1342	1497	1494	1553
Q Serve(g_s), s	4.8	5.7	0.1	6.5	6.4	0.0	11.4	84.4	1.5	16.0	47.9	48.0
Cycle Q Clear(g_c), s	4.8	5.7	0.1	6.5	6.4	0.0	11.4	84.4	1.5	16.0	47.9	48.0
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	154	126	498	165	127	260	519	1800	864	170	627	652
V/C Ratio(X)	0.36	0.53	0.02	0.98	0.59	0.02	0.49	1.02	0.12	1.44	0.88	0.88
Avail Cap(c_a), veh/h	154	349	684	165	352	448	519	1800	864	170	883	918
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	56.6	62.4	15.7	63.5	62.7	29.6	37.2	28.4	2.9	62.6	37.7	37.7
Incr Delay (d2), s/veh	1.4	3.4	0.0	62.7	4.3	0.0	0.9	26.9	0.1	229.6	7.6	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	4.4	0.3	10.0	5.0	0.2	11.5	46.2	1.1	26.9	25.8	26.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	65.8	15.7	126.2	67.0	29.6	38.1	55.3	3.0	292.1	45.2	45.0
LnGrp LOS	E	E	B	F	E	C	D	F	A	F	D	D
Approach Vol, veh/h		132			241			2203			1370	
Approach Delay, s/veh		59.1			105.8			50.8			89.3	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	90.4	12.0	16.8	47.2	65.2	12.0	16.8				
Change Period (Y+Rc), s	6.0	* 6	5.5	5.5	6.0	6.0	6.0	5.5				
Max Green Setting (Gmax), s	16.0	* 84	6.5	31.1	16.0	83.4	6.0	31.1				
Max Q Clear Time (g_c+11g), s	11.0	86.4	8.5	7.7	13.4	50.0	6.8	8.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.2	9.3	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	67.8
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary

104: SR 3 SB On Ramp/SR 3 SB Off Ramp & Loxie Eagans Blvd

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑						↑	↑
Traffic Volume (veh/h)	0	456	358	373	746	0	0	0	0	46	0	119
Future Volume (veh/h)	0	456	358	373	746	0	0	0	0	46	0	119
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	1560	1560	1572	1572	0				1560	1560	1560
Adj Flow Rate, veh/h	0	490	0	401	802	0				49	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	4	4	3	3	0				4	4	4
Cap, veh/h	0	2572		657	1301	0				73	0	
Arrive On Green	0.00	1.00	0.00	1.00	1.00	0.00				0.05	0.00	0.00
Sat Flow, veh/h	0	3042	1322	693	1571	0				1485	0	1322
Grp Volume(v), veh/h	0	490	0	482	721	0				49	0	0
Grp Sat Flow(s),veh/h/ln	0	1482	1322	834	1359	0				1485	0	1322
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				3.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				3.9	0.0	0.0
Prop In Lane	0.00		1.00	0.83		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2572		778	1180	0				73	0	
V/C Ratio(X)	0.00	0.19		0.62	0.61	0.00				0.67	0.00	
Avail Cap(c_a), veh/h	0	2572		778	1180	0				421	0	
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.84	0.00	0.55	0.55	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				56.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	2.0	1.3	0.0				10.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr0.0	0.0	0.1	0.0	0.8	0.8	0.0				3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.1	0.0	2.0	1.3	0.0				66.5	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		490			1203						49	
Approach Delay, s/veh		0.1			1.6						66.5	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		109.1		10.9		109.1						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		76.0		34.0		76.0						
Max Q Clear Time (g_c+I1), s		2.0		5.9		2.0						
Green Ext Time (p_c), s		3.6		0.2		13.8						

Intersection Summary

HCM 6th Ctrl Delay	3.0
HCM 6th LOS	A

Notes

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

MOVEMENT SUMMARY

Site: 216 [SR 3 & Imperial Way (Site Folder: 2044 PM)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h	%	veh/h	%	v/c	sec			ft				mph
South: SR 3															
3	L2	All MCs	53	8.0	53	8.0	0.112	15.5	LOS B	0.5	12.2	0.63	0.84	0.63	27.4
8	T1	All MCs	650	8.0	650	8.0	0.856	17.3	LOS D	10.4	276.3	0.97	1.08	1.60	33.7
18	R2	All MCs	14	8.0	14	8.0	0.856	17.0	LOS D	10.4	276.3	0.97	1.08	1.60	26.6
Approach			717	8.0	717	8.0	0.856	17.2	LOS B	10.4	276.3	0.95	1.06	1.53	33.0
East: Imperial Way															
1	L2	All MCs	100	4.0	100	4.0	0.750	14.1	LOS B	5.1	131.0	0.86	1.11	1.30	26.8
6	T1	All MCs	36	4.0	36	4.0	0.750	9.5	LOS A	5.1	131.0	0.86	1.11	1.30	25.1
16	R2	All MCs	301	4.0	301	4.0	0.750	10.2	LOS B	5.1	131.0	0.86	1.11	1.30	27.0
Approach			437	4.0	437	4.0	0.750	11.0	LOS B	5.1	131.0	0.86	1.11	1.30	26.8
North: SR 3															
7	L2	All MCs	118	4.0	118	4.0	0.126	12.2	LOS B	0.7	17.1	0.41	0.66	0.41	28.2
4	T1	All MCs	729	4.0	729	4.0	0.533	7.3	LOS A	4.5	115.5	0.54	0.54	0.54	38.9
14	R2	All MCs	3	4.0	3	4.0	0.533	6.9	LOS A	4.5	115.5	0.54	0.54	0.54	34.5
Approach			851	4.0	851	4.0	0.533	8.0	LOS A	4.5	115.5	0.52	0.55	0.52	36.9
West: Imperial Way															
5	L2	All MCs	593	3.0	593	3.0	0.745	34.7	LOS C	7.5	192.7	0.91	1.07	1.40	29.2
2	T1	All MCs	29	3.0	29	3.0	0.577	11.5	LOS B	4.0	101.9	0.82	0.92	1.08	25.4
12	R2	All MCs	333	3.0	333	3.0	0.577	11.5	LOS B	4.0	101.9	0.82	0.92	1.08	31.9
Approach			955	3.0	955	3.0	0.745	25.9	LOS C	7.5	192.7	0.88	1.01	1.28	29.9
All Vehicles			2961	4.6	2961	4.6	0.856	16.5	LOS B	10.4	276.3	0.79	0.91	1.13	31.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Roundabout Capacity Model: SIDRA HCM.

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

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

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

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

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

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

Organisation: TRANSPORTATION SOLUTIONS, INC. | Licence: NETWORK / 1PC | Processed: Monday, July 1, 2024 11:00:28 AM

Project: C:\Users\Daniel Hodun\TSl Dropbox\Daniel Hodun\TSl Projects\2023\223053 City of Bremerton 2024 Active Transportation Plan

#554-1896-192\LOS\2044 Mitigated.sip9