



13th Street Traffic Engineering Study

13th Street Corridor Improvements from Chattahoochee
River Bridge to 5th Avenue

Columbus Consolidated Government, Muscogee County,
GA

March 31, 2022

Prepared for:

Columbus Consolidated Government

Prepared by:

Stantec Consulting Services Inc.

Sign-off Sheet

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Prepared by Joshua Ekstedt
(signature)

Joshua Ekstedt, EIT

Reviewed by Michael R Holt
(signature)

Michael Holt, PE, PTOE

Approved by Mitchell Greenway
(signature)

Mitchell Greenway, PE

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1.0 EXECUTIVE SUMMARY

The purpose of a Road Safety Analysis (RSA) is to recommend safety improvements to the City of Columbus. These recommendations need to improve safety while maintaining or improving the functionality of the corridor. This traffic engineering report describes the existing and future operation under present and increasing traffic volumes.

Average daily traffic (ADT) counts were taken at the following locations:

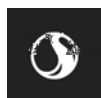
- West of Broadway
- East of Broadway
- East of 1st Avenue
- West of 3rd Avenue
- East of 3rd Avenue
- East of Veterans Parkway

Turning movement counts (TMC) were collected at the six intersections along the study corridor. This data provides base line volumes for this traffic study.

A growth rate of 1% was determined by using nearby GDOT traffic count stations and US Census Bureau data for Muscogee County/City of Columbus. This growth rate was applied to the collected traffic data to project traffic volumes in the year 2044. These volumes were input into Synchro 10 to determine the level of service (LOS) of the six key intersections and each of their approaches.

Under existing traffic volumes, all but six approaches are currently operating at an acceptable LOS. However, once the volumes were increased to the projected 2044 volumes, more approaches began to show unacceptable LOS scores. In addition to failing approaches, the Broadway intersection received an LOS score of E in 2044 under the No-Build conditions.

This traffic engineering report indicates that most 13th Street intersections are currently operating at acceptable levels of service, although there are some approaches which can be improved.

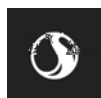


2.0 INTRODUCTION

The purpose of this report is to document the traffic analysis results for the 13th Street study corridor for the Columbus Consolidated Government (CCG). The observations and analysis available in this report, in conjunction with a Road Safety Audit, will serve to develop improvement recommendations along the corridor. The goal of these improvements is to create a safe walking and driving environment that lowers accident rates for vehicles, pedestrians, and cyclists throughout the corridor. In the following sections, the analysis of traffic operations is described for existing conditions in 2021 and for future No-Build conditions in 2044, as well as future Build conditions.

Capacity analysis is one step in identifying needs and potential improvement alternatives for the study of the corridor. This study identifies areas along the corridor that currently have or are expected to have operational deficiencies via the following processes:

- Capacity analyses along the corridor for existing and projected future volumes under no build conditions
- Documentation of results



3.0 INVENTORY OF TRAFFIC CONDITIONS

3.1 CORRIDOR DESCRIPTION

For the purpose of this report, 13th Street is referred to as an east-west route throughout the entire study corridor. The study corridor is 13th Street from the Chattahoochee River Bridge to 5th Avenue. 13th Street is a principal arterial with a five-lane cross-section from the Chattahoochee River Bridge to 3rd Avenue. Street parking is permitted over this same section of 13th Street. After 3rd Avenue, 13th Street widens to six-lanes, and provides an eastbound right-turn lane approaching the Veterans Parkway intersection. After Veterans Parkway 13th Street widens to 7 lanes. The posted speed limit is 35 miles per hour. As illustrated in **Figure 1**, the six study intersections include:

1. 13th Street at Broadway
2. 13th Street at 1st Avenue
3. 13th Street at 2nd Avenue
4. 13th Street at 3rd Avenue
5. 13th Street at Veterans Parkway
6. 13th Street at 5th Avenue

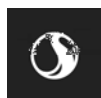
3.2 ROADWAY INVENTORY & EXISTING CONDITIONS

To determine existing traffic conditions of the study corridor, an inventory was made of 13th Street, the six study intersections, and other key roadways influencing the study area.

13th Street is an east-west urban roadway that is classified as a principal arterial. The study corridor runs from the Chattahoochee River Bridge to 5th Avenue. The approximately 0.66-mile-long study corridor is a commercial road with several businesses and a few high-rise structures. Future developments may add residential land uses to this corridor. The cross-section along the corridor is primarily five-lane undivided with 10'-12' lanes. East of the Veterans Parkway intersection, the 13th Street cross-section widens to seven-lanes. Commercial driveways are spaced frequently along the corridor. The posted speed limit along the corridor is 35 miles per hour (mph).

The average annual daily traffic (AADT) volumes along the corridor are provided in the list below.

- West of Broadway: 24,200 vehicles per day (vpd)
- East of Broadway: 24,475 vpd



13TH STREET TRAFFIC ENGINEERING STUDY

Inventory of Traffic Conditions

- East of 1st Avenue: 24,975 vpd
- East of 2nd Avenue: 22,350 vpd
- East of 3rd Avenue: 21,175 vpd
- East of Veterans Parkway: 17,400 vpd.

As can be seen from the list above, the traffic volumes peak between 1st and 2nd Avenue, and then decrease towards the western and eastern ends of the study corridor. A site location map that illustrates intersection control type, as well as data collection sites, is provided in Figure 1 (See Page 3.4).

3.3 INTERSECTION INVENTORY & EXISTING CONDITIONS

The following is a brief inventory of the existing conditions at each of the six intersections, as summarized in Table 1 (See Page 3.5).

1. 13th Street at Broadway

This four-legged intersection is signal controlled. Supplemental signals on the far side of the eastbound and westbound approaches have been noted as confusing motorists making northbound and southbound left-turns onto 13th Street. Sidewalks and crosswalks are present on all legs, but the curb ramps do not meet ADA requirements. Dedicated left turn lanes are provided for the east, west, and northbound approaches. Protected left turn phases are only provided for the eastbound and westbound movements.

2. 13th Street at 1st Avenue

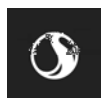
This four-legged intersection is signal controlled. Supplemental signals on the far side of the eastbound and westbound approaches have been noted as confusing motorists making northbound and southbound left-turns onto 13th Street. Sidewalks and crosswalks are present on all legs, but the curb ramps do not meet ADA requirements. Dedicated left turn lanes and protected left turn phases are only provided for the eastbound and westbound movements.

3. 13th Street at 2nd Avenue

This four-legged intersection is signal controlled. Sidewalks and crosswalks are present on all legs, but the curb ramps do not meet ADA requirements. Dedicated left turn lanes are provided for all approaches. Protected left turn phases are provided for the eastbound and westbound movements.

4. 13th Street at 3rd Avenue

This four-legged intersection is signal controlled. Sidewalks are present on all legs, but the curb ramps do not meet ADA requirements. Crosswalks are present on all legs



13TH STREET TRAFFIC ENGINEERING STUDY

Inventory of Traffic Conditions

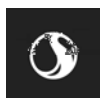
except the south leg. A left turn lane is provided for the eastbound and westbound movements, but no protected left turning phase is provided.

5. 13th Street at Veterans Parkway

This four-legged intersection is signal controlled. Sidewalks and crosswalks are present on all legs, and the curb ramps appear to meet ADA requirements. A single, dedicated left-turn lane is present on each approach, and protected left turn phases are provided for all approaches.

6. 13th Street at 5th Avenue

This four-legged intersection is signal controlled. Sidewalks and crosswalks are present on all legs, and the curb ramps appear to meet ADA requirements. A single, dedicated left-turn lane is present on each approach, and protected left turn phases are provided for the eastbound and westbound movements.



13TH STREET TRAFFIC ENGINEERING STUDY

Inventory of Traffic Conditions



(X) TMC Intersections



Existing Signal

(X) ADT Count Locations

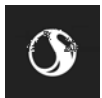
TMC Intersections

1. 13th Street @ Broadway
2. 13th Street @ 1st Avenue
3. 13th Street @ 2nd Avenue
4. 13th Street @ 3rd Avenue
5. 13th Street @ Veterans Parkway
6. 13th Street @ 5th Avenue

ADT Count Locations

- A. West of Broadway
- B. East of Broadway
- C. East of 1st Avenue
- D. West of 3rd Avenue
- E. East of 3rd Avenue
- F. East of Veterans Parkway

Figure 1 Site Location Map



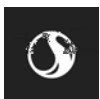
13TH STREET TRAFFIC ENGINEERING STUDY

Inventory of Traffic Conditions

Table 1. Existing Conditions

Road Name	Primary Cross-Section	Functional Classification	AADT	Speed Limit
			(vpd)	(mph)
13 th Street	5-Lane Undivided	Principal Arterial	24,975	30
Broadway	4-Lane Divided	Major Collector	5,250*	30
1 st Avenue	4-Lane Divided	Major Collector	4,410*	30
2 nd Avenue	3-Lane/5-Lane Undivided	Minor Arterial	10,800*	25
3 rd Avenue	2-Lane Undivided	Minor Arterial	1,760*	30
Veterans Parkway	6-Lane/7-Lane Divided	Principal Arterial	16,800*	35
5 th Avenue	3-Lane/5-Lane Undivided	Major Collector	1810*	30

*AADT values are taken from the most recent available GDOT TADA Count Station



4.0 TRAFFIC ANALYSIS

4.1 TRAFFIC DATA COLLECTION

Bidirectional speed and classification counts were taken east and west of Broadway and west of 3rd Avenue for the full 24-hours of May 11, 2021. Bidirectional volume only counts were also taken for the full 24-hours of May 11, 2021, east of Front Avenue, east of 3rd Avenue, and east of Veterans Parkway (See **Appendices A** and **B**, respectively). Turning movement counts were collected at the six 13th Street study intersections on May 10, 2021 (See **Appendix C**). Turning movement were collected from 7 AM to 9 AM and from 4 PM to 6 PM.

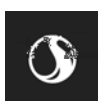
From the classification and volume counts, it was determined that the AM peak hour began at 11:45 AM and the PM peak hour began at 4:30 PM. To address the fact that the AM peak hour took place outside the turning movement count collection window, the turning movement counts which were collected in the early morning were increased using the ratio of the 11:45 AM volumes and the volumes collected during the peak hour within the morning collection period. These are the base year volumes to which growth rates were applied to generate future volumes for the capacity analysis.

4.2 TRUCK PERCENTAGES

Table 2 contains the truck percentages which were calculated from the classification counts. The only heavy vehicles recorded on the study corridor were buses or single unit trucks. Any larger vehicles were too few to be significant. Truck percentages appear to be consistent along the corridor at around 2.5% – 3.5%. The peak hours do not show a higher truck percentage than the 24-hour counts, which may indicate that truck traffic is consistent throughout the day along the 13th Street study corridor. See **Appendix D** for truck percentage calculations.

Table 2. Truck Percentages

Count Location	24 Hour T%			Peak Hour T%			
	S.U.	Comb.	Total	Period	S.U.	Comb.	Total
13th St W/O Broadway	3.5%	0.0%	3.5%	AM	3.5%	0.0%	3.5%
				PM	3.0%	0.0%	3.0%
13th St E/O Broadway	3.5%	0.0%	3.5%	AM	3.5%	0.0%	3.5%
				PM	3.5%	0.0%	3.5%
13th St W/O 3rd Ave	3.0%	0.0%	3.0%	AM	3.0%	0.0%	3.0%
				PM	2.5%	0.0%	2.5%



4.3 GROWTH RATE DEVELOPMENT

Two sources were used to determine the growth rate that would be used to project traffic volumes into the year 2044. First, historic traffic volume data from GDOT count stations located on or near 13th Street were analyzed. Looking at the four stations that were located nearby, which only provided information up to 2019, it was found that the average trend growth rate in this area was -0.6% over the 5-year period from 2015-2019, but a 1.0% growth rate in the 10-year period from 2010-2019 (See **Appendix G**).

US Census Bureau data was collected for five geographic locations around the study corridor. These locations included: Muscogee County, Russell County, Phenix City, Columbus, GA-AL Metro Area, and the Columbus-Auburn-Opelika CSA. Averaging the population growth rates of these locations gave an average annual growth rate of 1.0% from 2010-2019 (See **Appendix G**).

Given that the GDOT count stations and US Census data were both showing a 1.0% growth rate in the 10-year period from 2010-2019, this analysis opted to use the **1.0%** growth rate. Using this 1% growth rate, turning movement counts for the projected year 2044 were used to model future traffic conditions in the no-build condition (See **Appendix E**). Note that these turning movement counts were not balanced between adjacent intersections.

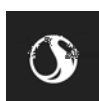
4.4 CAPACITY ANALYSIS METHODOLOGY

Capacity analysis models of each study intersection were completed using the software program Synchro 10, which outputs operating condition statistics. Level of service (LOS) is a term used to describe differing levels of traffic congestion and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists or passengers.” LOS varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. Generally, LOS D is acceptable for signalized intersections in suburban areas during peak periods. For unsignalized intersections, LOS D is desirable, but it is not uncommon for some minor street movements or approaches to operate at LOS F during peak hour conditions, which is not necessarily indicative of needed improvements.

The Highway Capacity Manual Level of Service criteria for signalized intersections are shown in **3**.

Table 3. HCM Intersection Level of Service Criteria

LOS	Control Delay (seconds per vehicle)
	Signalized Intersection
A	≤ 10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	> 80

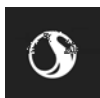


5.0 2021 & 2044 NO-BUILD & BUILD CONDITIONS CAPACITY ANALYSIS

Table 4 on the following page shows the LOS and overall average intersection delay (in seconds per vehicle) for the study intersections during both the 2021 and 2044 no-build conditions.

As shown in **Table 4** all of the study intersections are currently operating at adequate Levels of Service (LOS) during both peak periods. However, while the intersections are operating at acceptable levels overall, there are some approaches that are operating at an LOS of E. The movements that are showing this low LOS score are the side street approaches at each intersection. Veterans Parkway is the only intersection that does not show low LOS with the 2021 volumes. The capacity analysis Synchro printouts are included in **Appendix F**.

In the future conditions only one intersection does not operate at an acceptable LOS. 13th Street and Broadway operates at an overall LOS of E during the PM peak at 2044 volumes. This is due to the delay on the northbound and southbound movements. All of the five other intersections have at least one or more movements in the AM or PM peak periods that are LOS E or F. These changes demonstrate that there is room for operational improvement so that 13th Street can better handle future volumes.



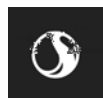
13TH STREET TRAFFIC ENGINEERING STUDY

2021 & 2044 No-Build & Build Conditions Capacity Analysis

Table 4. No-Build Conditions Capacity Analysis Summary

LOS/Delay		2021 No-Build		2044 No-Build		
		AM	PM	AM	PM	
1	Broadway	Overall	B (13.2)	C (22.1)	B (18.1)	E (57.4)
		EB	B (14.1)	B (19.2)	C (20.7)	C (23.0)
		WB	A (1.7)	A (4.3)	A (3.6)	A (9.8)
		NB	D (49.7)	F (95.6)	D (49.3)	F (432)
		SB	D (49.9)	D (54.5)	D (50)	E (74.3)
2	1st Avenue	Overall	A (7.4)	B (10.1)	A (7.7)	B (10.2)
		EB	A (1.7)	A (1)	A (2.3)	A (1.4)
		WB	A (1.5)	A (1.6)	A (2.1)	A (1.9)
		NB	E (61.7)	E (66.2)	E (59.8)	E (65.3)
		SB	D (54.3)	D (54.2)	D (52.1)	D (50.5)
3	2nd Avenue	Overall	B (16.9)	C (17.7)	C (20.0)	C (33.7)
		EB	A (3.3)	A (3.0)	A (5.1)	A (4.0)
		WB	A (1.9)	A (3.4)	A (5.6)	A (8.9)
		NB	D (39.9)	E (58.3)	D (37.9)	F (96.9)
		SB	D (51.1)	D (54.1)	E (58.2)	F (110.4)
4	3rd Avenue	Overall	A (5.7)	A (7.0)	A (5.8)	A (7.9)
		EB	A (0.8)	A (0.5)	A (0.6)	A (0.8)
		WB	A (0.4)	A (0.7)	A (0.6)	A (0.9)
		NB	D (45.2)	E (59.6)	D (47.1)	E (66.4)
		SB	D (43.6)	E (55.5)	D (44.9)	E (54.5)
5	Veterans Parkway	Overall	D (35.3)	D (38.4)	D (48.8)	D (52.6)
		EB	D (46.8)	D (39.0)	E (76.3)	E (64.7)
		WB	D (39.2)	D (52.5)	D (41.0)	D (53.5)
		NB	C (29.4)	C (31.2)	D (36.8)	D (41.5)
		SB	C (26.6)	C (32.6)	D (35.2)	D (52.4)
6	5th Avenue	Overall	B (10.3)	B (14.7)	B (10.7)	B (15.7)
		EB	A (0.7)	A (0.7)	A (0.7)	A (0.9)
		WB	A (7.8)	A (10.0)	A (9.7)	B (13.0)
		NB	D (48.6)	D (53.8)	D (46.4)	D (50.7)
		SB	D (50.6)	E (56.5)	D (48.8)	E (54.2)

Legend:	
X (X)	LOS (Delay)
	Signalized Movement



Conclusions

One build scenario considered by this analysis was the addition of a protected left turn phase for the 2nd Avenue approaches so that those left turns would have both protected and permitted phases. This phase was added to the 2nd Avenue intersection, and the signal timing was optimized. Due to the scope of the analysis, only the impact on the 2nd Avenue intersection was measured. The results of this analysis are provided in **Table 5**. Adding the protected phase for the 2nd Avenue left turns would increase delay at this intersection and could increase delay along the corridor due to the coordination of signals along 13th Street. The capacity analysis Synchro printouts are included in **Appendix F**

Table 5. Capacity Analysis for Permitted/Protected Left Turns from 2nd Avenue

LOS/Delay		2021 No-Build		2021 Permitted + Protected Left Turns From 2nd Ave	
		AM	PM	AM	PM
2nd Avenue at 13th Street	Overall	B (16.9)	C (17.7)	C (23.7)	C (24.8)
	EB	A (3.3)	A (3.0)	B (16.4)	B (18.1)
	WB	A (1.9)	A (3.4)	A (4.6)	A (4.6)
	NB	D (39.9)	E (58.3)	D (42.1)	E (74.4)
	SB	D (51.1)	D (54.1)	D (50.4)	D (53.2)

6.0 CONCLUSIONS

From examining the traffic conditions along 13th Street in a comprehensive fashion, it is apparent that in the existing year the corridor is operating at acceptable levels of service at all intersections. However, when observing the individual approaches, it becomes clear that some movements from side-streets suffer from lengthy delays and higher queues, especially as volumes grow toward the future 2044 condition.

The Broadway intersection drops to an LOS of E during the PM Peak at 2044 volumes, this is due to the increased demand on this approach. The main cause of poor performance on the side streets is due to priority being given to the mainline, which is 13th Street. The only exception is at the Veterans Parkway intersection where 13th Street serves as the side approach. Addressing these performance issues would require adjusting the coordinate traffic signal system along 13th Street, which could have impacts on Veterans Parkway as well.

The results and analysis described in this report, along with a Road Safety Audit, will serve to develop improvement recommendations along the corridor with a focus on traffic operations and safety.



APPENDICES

- Appendix A** Traffic Volume Counts
- Appendix B** Speed Counts
- Appendix C** Turning Movement Counts
- Appendix D** Truck Percentage Calculations
- Appendix E** Traffic Volume Projections
- Appendix F** Synchro Reports
- Appendix G** Growth Rate Calculations

Appendix A TRAFFIC VOLUME COUNTS



VOLUME

13th St E/O 1st Ave

Day: Tuesday
Date: 5/11/2021

City: Columbus
Project #: GA21_180120_003

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	14,375	13,852	28,227

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			25	29	54	12:00			265	228	493			
00:15			36	26	62	12:15			265	251	516			
00:30			26	39	65	12:30			254	253	507			
00:45			22	109	24	118	12:45		264	1048	232	964	496	2012
01:00			18	17	35	13:00			251	246	497			
01:15			19	28	47	13:15			235	260	495			
01:30			19	15	34	13:30			271	219	490			
01:45			22	78	22	82	13:45		245	1002	194	919	439	1921
02:00			17	12	29	14:00			199	224	423			
02:15			14	16	30	14:15			193	242	435			
02:30			17	14	31	14:30			225	230	455			
02:45			6	54	7	49	14:45		234	851	262	958	496	1809
03:00			14	8	22	15:00			237	272	509			
03:15			6	9	15	15:15			246	248	494			
03:30			16	10	26	15:30			229	268	497			
03:45			15	51	10	37	15:45		212	924	295	1083	507	2007
04:00			13	7	20	16:00			231	284	515			
04:15			16	10	26	16:15			237	297	534			
04:30			32	17	49	16:30			243	311	554			
04:45			27	88	24	58	16:45		258	969	350	1242	608	2211
05:00			33	17	50	17:00			259	346	605			
05:15			38	31	69	17:15			266	364	630			
05:30			58	26	84	17:30			271	289	560			
05:45			76	205	26	100	17:45		216	1012	290	1289	506	2301
06:00			66	52	118	18:00			215	246	461			
06:15			119	56	175	18:15			192	234	426			
06:30			147	70	217	18:30			219	235	454			
06:45			210	542	80	258	18:45		151	777	190	905	341	1682
07:00			205	96	301	19:00			130	217	347			
07:15			267	140	407	19:15			133	179	312			
07:30			298	122	420	19:30			173	183	356			
07:45			349	1119	143	501	19:45		142	578	153	732	295	1310
08:00			251	158	409	20:00			159	175	334			
08:15			270	200	470	20:15			147	152	299			
08:30			254	153	407	20:30			119	138	257			
08:45			235	1010	166	677	20:45		139	564	131	596	270	1160
09:00			226	165	391	21:00			110	119	229			
09:15			176	157	333	21:15			127	103	230			
09:30			196	186	382	21:30			90	128	218			
09:45			202	800	207	715	21:45		85	412	110	460	195	872
10:00			198	181	379	22:00			83	81	164			
10:15			217	184	401	22:15			58	74	132			
10:30			201	194	395	22:30			75	60	135			
10:45			218	834	215	774	22:45		67	283	58	273	125	556
11:00			194	180	374	23:00			43	70	113			
11:15			216	205	421	23:15			52	54	106			
11:30			238	210	448	23:30			48	60	108			
11:45			249	897	243	838	23:45		25	168	40	224	65	392
TOTALS			5787	4207	9994	TOTALS			8588	9645	18233			
SPLIT %			57.9%	42.1%	35.4%	SPLIT %			47.1%	52.9%	64.6%			

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	14,375	13,852	28,227

AM Peak Hour		07:30	11:45	11:45	PM Peak Hour		16:45	16:30	16:45		
AM Pk Volume		1168	975	2008	PM Pk Volume		1054	1371	2403		
Pk Hr Factor		0.837	0.963	0.973	Pk Hr Factor		0.972	0.942	0.954		
7 - 9 Volume	0	0	2129	1178	3307	4 - 6 Volume	0	0	1981	2531	4512
7 - 9 Peak Hour		07:30	08:00	07:30	4 - 6 Peak Hour		16:45	16:30	16:45		
7 - 9 Pk Volume	0	0	1168	677	1791	4 - 6 Pk Volume	0	0	1054	1371	2403
Pk Hr Factor	0.000	0.000	0.837	0.846	0.910	Pk Hr Factor	0.000	0.000	0.972	0.942	0.954

VOLUME

13th St E/O 3rd Ave

Day: Tuesday
Date: 5/11/2021

City: Columbus
Project #: GA21_180120_004

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	11,918	12,023	23,941

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			23	28	51	12:00			215	196	411			
00:15			28	23	51	12:15			192	228	420			
00:30			23	36	59	12:30			206	207	413			
00:45			16	90	23	110	12:45		219	832	210	841	429	1673
01:00			17	17	34	13:00			204	195	399			
01:15			19	26	45	13:15			212	208	420			
01:30			18	10	28	13:30			214	190	404			
01:45			18	72	21	74	13:45		207	837	179	772	386	1609
02:00			20	14	34	14:00			170	186	356			
02:15			13	13	26	14:15			160	216	376			
02:30			14	13	27	14:30			191	211	402			
02:45			6	53	8	48	14:45		210	731	248	861	458	1592
03:00			10	8	18	15:00			209	229	438			
03:15			5	9	14	15:15			220	207	427			
03:30			13	8	21	15:30			188	234	422			
03:45			15	43	9	34	15:45		181	798	248	918	429	1716
04:00			11	15	26	16:00			183	242	425			
04:15			15	8	23	16:15			174	253	427			
04:30			23	15	38	16:30			206	248	454			
04:45			28	77	23	61	16:45		210	773	292	1035	502	1808
05:00			27	15	42	17:00			189	301	490			
05:15			39	28	67	17:15			214	287	501			
05:30			43	23	66	17:30			214	236	450			
05:45			68	177	23	89	17:45		172	789	256	1080	428	1869
06:00			62	48	110	18:00			173	194	367			
06:15			102	55	157	18:15			159	209	368			
06:30			119	67	186	18:30			154	187	341			
06:45			187	470	79	249	18:45		117	603	162	752	279	1355
07:00			155	85	240	19:00			106	179	285			
07:15			218	125	343	19:15			105	167	272			
07:30			232	120	352	19:30			136	150	286			
07:45			261	866	148	478	19:45		122	469	132	628	254	1097
08:00			210	159	369	20:00			124	129	253			
08:15			203	173	376	20:15			125	144	269			
08:30			200	140	340	20:30			104	112	216			
08:45			215	828	145	617	20:45		113	466	105	490	218	956
09:00			173	165	338	21:00			109	118	227			
09:15			171	134	305	21:15			116	99	215			
09:30			170	160	330	21:30			91	112	203			
09:45			172	686	170	629	21:45		75	391	102	431	177	822
10:00			184	135	319	22:00			86	70	156			
10:15			183	166	349	22:15			53	70	123			
10:30			171	158	329	22:30			61	52	113			
10:45			175	713	183	642	22:45		55	255	51	243	106	498
11:00			164	169	333	23:00			35	71	106			
11:15			178	182	360	23:15			45	46	91			
11:30			196	171	367	23:30			44	48	92			
11:45			210	748	215	737	23:45		27	151	39	204	66	355
TOTALS			4823	3768	8591	TOTALS			7095	8255	15350			
SPLIT %			56.1%	43.9%	35.9%	SPLIT %			46.2%	53.8%	64.1%			

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	11,918	12,023	23,941

AM Peak Hour		07:15	11:45	11:45	PM Peak Hour		12:45	16:30	16:30		
AM Pk Volume		921	846	1669	PM Pk Volume		849	1128	1947		
Pk Hr Factor		0.882	0.928	0.982	Pk Hr Factor		0.969	0.937	0.970		
7 - 9 Volume	0	0	1694	1095	2789	4 - 6 Volume	0	0	1562	2115	3677
7 - 9 Peak Hour			07:15	07:45	07:30	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	921	620	1506	4 - 6 Pk Volume	0	0	827	1128	1947
Pk Hr Factor	0.000	0.000	0.882	0.896	0.921	Pk Hr Factor	0.000	0.000	0.966	0.937	0.970

VOLUME

13th St E/O SR 1/US 27/Veterans Pkwy

Day: Tuesday
Date: 5/11/2021

City: Columbus
Project #: GA21_180120_005

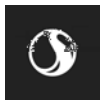
DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	10,474	9,205	19,679

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			21	25	46	12:00			186	165	351			
00:15			17	16	33	12:15			193	209	402			
00:30			15	20	35	12:30			181	174	355			
00:45			11	64	15	76	12:45		207	767	160	708	367	1475
01:00			15	12	27	13:00			181	157	338			
01:15			13	16	29	13:15			169	160	329			
01:30			11	6	17	13:30			176	166	342			
01:45			12	51	10	44	13:45		178	704	175	658	353	1362
02:00			15	7	22	14:00			152	159	311			
02:15			11	10	21	14:15			180	177	357			
02:30			11	7	18	14:30			161	172	333			
02:45			7	44	4	28	14:45		197	690	164	672	361	1362
03:00			10	8	18	15:00			192	169	361			
03:15			5	7	12	15:15			202	168	370			
03:30			13	10	23	15:30			176	144	320			
03:45			14	42	7	32	15:45		162	732	149	630	311	1362
04:00			11	9	20	16:00			176	167	343			
04:15			13	4	17	16:15			182	167	349			
04:30			16	16	32	16:30			181	173	354			
04:45			18	58	16	45	16:45		180	719	196	703	376	1422
05:00			21	9	30	17:00			185	199	384			
05:15			27	24	51	17:15			212	205	417			
05:30			27	17	44	17:30			189	173	362			
05:45			33	108	22	72	17:45		176	762	167	744	343	1506
06:00			57	41	98	18:00			143	160	303			
06:15			66	39	105	18:15			153	122	275			
06:30			72	65	137	18:30			123	141	264			
06:45			123	318	73	218	18:45		109	528	111	534	220	1062
07:00			112	78	190	19:00			108	115	223			
07:15			186	104	290	19:15			97	103	200			
07:30			191	105	296	19:30			109	103	212			
07:45			235	724	114	401	19:45		96	410	112	433	208	843
08:00			197	136	333	20:00			113	95	208			
08:15			176	134	310	20:15			108	95	203			
08:30			188	135	323	20:30			76	84	160			
08:45			201	762	131	536	20:45		101	398	78	352	179	750
09:00			133	126	259	21:00			96	85	181			
09:15			174	134	308	21:15			89	81	170			
09:30			135	136	271	21:30			64	87	151			
09:45			153	595	146	542	21:45		62	311	77	330	139	641
10:00			159	127	286	22:00			80	55	135			
10:15			188	138	326	22:15			46	49	95			
10:30			136	108	244	22:30			41	47	88			
10:45			161	644	139	512	22:45		67	234	42	193	109	427
11:00			152	129	281	23:00			38	55	93			
11:15			150	142	292	23:15			36	41	77			
11:30			191	140	331	23:30			25	38	63			
11:45			197	690	164	575	23:45		20	119	33	167	53	286
TOTALS			4100	3081	7181	TOTALS			6374	6124	12498			
SPLIT %			57.1%	42.9%	36.5%	SPLIT %			51.0%	49.0%	63.5%			

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	10,474	9,205	19,679

AM Peak Hour	07:15	11:45	11:45	PM Peak Hour	12:00	16:30	16:45				
AM Pk Volume	809	712	1469	PM Pk Volume	767	773	1539				
Pk Hr Factor	0.861	0.852	0.914	Pk Hr Factor	0.926	0.943	0.923				
7 - 9 Volume	0	0	1486	937	2423	4 - 6 Volume	0	0	1481	1447	2928
7 - 9 Peak Hour	07:15	08:00	07:45	4 - 6 Peak Hour	16:45	16:30	16:45				
7 - 9 Pk Volume	0	0	809	536	1315	4 - 6 Pk Volume	0	0	766	773	1539
Pk Hr Factor	0.000	0.000	0.861	0.985	0.942	Pk Hr Factor	0.000	0.000	0.903	0.943	0.923

Appendix B SPEED COUNTS



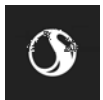
West Bound

Table with columns: Time, < 15, 15 - 19, 20 - 24, 25 - 29, 30 - 34, 35 - 39, 40 - 44, 45 - 49, 50 - 54, 55 - 59, 60 - 64, 65 - 69, 70 +, Total. Rows list times from 00:00 AM to 23:45 with corresponding volume counts.

Summary table with rows: AM Volumes, PM Volumes, Directional Peak Periods (AM 7-9, NOON 12-2, PM 4-6, Off Peak Volumes) and columns for Volume and %.

Table with columns: Street Name, Direction, and Percentiles (15th, 50th, Average, 85th, 95th, ADT). Rows for 13th St East Bound and West Bound.

Appendix C TURNING MOVEMENT COUNTS



National Data & Surveying Services Intersection Turning Movement Count

Location: Broadway Ave & 13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-017
 Date: 5/10/2021

Data - Total

NS/EW Streets:	Broadway Ave				Broadway Ave				13th St				13th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0.5 NT	0.5 NR	0 NU	0.5 SL	0.5 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	2	0	3	0	1	2	12	0	12	212	2	0	11	81	0	0	338
7:15 AM	3	2	6	1	0	2	5	0	11	260	12	0	5	119	1	0	427
7:30 AM	1	0	1	1	0	3	6	1	22	335	9	0	8	113	2	0	502
7:45 AM	2	2	1	1	1	4	2	1	29	347	18	0	20	112	1	0	541
8:00 AM	3	0	1	0	0	1	14	1	15	255	16	0	20	138	0	0	464
8:15 AM	0	2	5	2	0	3	5	2	18	239	13	0	19	120	0	0	428
8:30 AM	2	1	10	2	0	5	7	2	19	233	10	0	21	110	4	0	426
8:45 AM	2	2	12	2	0	4	17	0	9	213	13	0	20	116	4	0	414
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	15	9	39	9	2	24	68	7	135	2094	93	0	124	909	12	0	3540
	20.83%	12.50%	54.17%	12.50%	1.98%	23.76%	67.33%	6.93%	5.81%	90.18%	4.01%	0.00%	11.87%	86.99%	1.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	4	8	4	1	11	27	5	84	1176	56	0	67	483	3	0	1935
PEAK HR FACTOR :	0.500	0.500	0.400	0.500	0.250	0.688	0.482	0.625	0.724	0.847	0.778	0.000	0.838	0.875	0.375	0.000	0.894
	0.611				0.688				0.835				0.875				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0.5 NT	0.5 NR	0 NU	0.5 SL	0.5 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	13	2	24	9	2	7	32	1	11	182	10	0	25	258	7	0	583
4:15 PM	15	4	22	7	4	4	29	3	21	196	18	0	26	284	7	0	640
4:30 PM	15	16	19	7	0	15	37	4	12	183	16	0	24	300	3	0	651
4:45 PM	14	5	19	7	4	9	41	8	21	225	19	0	37	315	8	0	732
5:00 PM	22	8	29	6	2	11	54	9	23	192	13	0	31	376	4	0	780
5:15 PM	13	8	13	7	2	9	49	6	12	223	18	0	34	313	12	0	719
5:30 PM	25	10	24	10	0	6	37	6	13	188	17	0	35	270	5	0	646
5:45 PM	12	10	25	11	4	18	32	11	22	169	24	0	50	239	3	0	630
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	129	63	175	64	18	79	311	48	135	1558	135	0	262	2355	49	0	5381
	29.93%	14.62%	40.60%	14.85%	3.95%	17.32%	68.20%	10.53%	7.39%	85.23%	7.39%	0.00%	9.83%	88.33%	1.84%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	64	37	80	27	8	44	181	27	68	823	66	0	126	1304	27	0	2882
PEAK HR FACTOR :	0.727	0.578	0.690	0.964	0.500	0.733	0.838	0.750	0.739	0.914	0.868	0.000	0.851	0.867	0.563	0.000	0.924
	0.800				0.855				0.903				0.886				

National Data & Surveying Services Intersection Turning Movement Count

Location: 1st Ave & 13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-018
 Date: 5/10/2021

Data - Total

NS/EW Streets:	1st Ave				1st Ave				13th St				13th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	1.5	1	0.5	0	1.5	0	0.5	1	2	0	0	1	2	0	0	319
7:15 AM	1	3	6	0	0	2	3	1	4	205	2	0	6	88	2	0	431
7:30 AM	3	6	8	1	3	5	6	0	6	265	4	0	5	132	6	0	479
7:45 AM	3	8	6	3	0	11	4	1	8	303	21	0	9	103	5	0	544
8:00 AM	2	1	21	3	1	10	4	0	5	336	11	0	10	137	6	0	461
8:15 AM	5	2	21	3	0	5	2	0	3	230	8	0	28	144	4	0	501
8:30 AM	5	3	14	2	1	1	2	1	4	249	14	0	41	145	11	0	411
8:45 AM	3	4	19	0	0	6	0	2	5	225	10	0	24	117	2	0	426
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	22	27	100	13	6	42	23	5	39	2025	83	0	144	1002	41	0	3572
	13.58%	16.67%	61.73%	8.02%	7.89%	55.26%	30.26%	6.58%	1.82%	94.32%	3.87%	0.00%	12.13%	84.41%	3.45%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	13	17	56	10	4	31	16	1	22	1118	54	0	88	529	26	0	1985
PEAK HR FACTOR :	0.650	0.531	0.667	0.833	0.333	0.705	0.667	0.250	0.688	0.832	0.643	0.000	0.537	0.912	0.591	0.000	0.912
	0.774				0.813				0.841				0.816				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	7	4	21	2	3	1	5	0	7	204	1	0	15	287	7	0	564
4:15 PM	11	8	22	1	0	1	5	3	5	209	3	0	13	292	4	0	577
4:30 PM	9	7	23	1	1	0	6	0	1	198	10	0	6	310	1	0	573
4:45 PM	14	10	24	4	0	1	3	2	5	238	3	0	9	349	1	0	663
5:00 PM	28	12	41	2	0	4	7	1	6	216	5	0	11	379	1	0	713
5:15 PM	13	3	31	2	3	4	5	0	5	214	4	0	11	336	2	0	633
5:30 PM	20	6	34	2	0	1	3	4	2	215	5	0	9	290	2	0	593
5:45 PM	6	3	22	3	1	2	6	1	4	177	0	0	14	276	3	0	518
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	108	53	218	17	8	14	40	11	35	1671	31	0	88	2519	21	0	4834
	27.27%	13.38%	55.05%	4.29%	10.96%	19.18%	54.79%	15.07%	2.01%	96.20%	1.78%	0.00%	3.35%	95.85%	0.80%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	75	31	130	10	3	10	18	7	18	883	17	0	40	1354	6	0	2602
PEAK HR FACTOR :	0.670	0.646	0.793	0.625	0.250	0.625	0.643	0.438	0.750	0.928	0.850	0.000	0.909	0.893	0.750	0.000	0.912
	0.741				0.792				0.933				0.895				

National Data & Surveying Services Intersection Turning Movement Count

Location: 2nd Ave & 13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-019
 Date: 5/10/2021

Data - Total

NS/EW Streets:	2nd Ave				2nd Ave				13th St				13th St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	0	0	1	1	1	0	1	2	0	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	10	0	0	3	24	20	0	38	164	5	0	2	78	4	0	348
7:15 AM	0	9	1	0	10	28	23	0	46	229	3	0	5	114	12	0	480
7:30 AM	0	21	1	0	17	52	26	0	47	262	8	0	2	91	8	0	535
7:45 AM	1	10	0	0	9	79	26	0	45	268	20	0	6	134	13	0	611
8:00 AM	1	45	3	0	17	93	54	0	29	210	22	0	15	119	12	0	620
8:15 AM	4	43	4	0	14	75	59	0	34	216	16	0	14	129	11	0	619
8:30 AM	4	26	7	0	10	38	30	0	27	192	13	0	18	103	10	0	478
8:45 AM	5	18	7	0	18	37	37	0	32	192	9	1	8	125	11	0	500
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	15	182	23	0	98	426	275	0	298	1733	96	1	70	893	81	0	4191
	6.82%	82.73%	10.45%	0.00%	12.27%	53.32%	34.42%	0.00%	14.00%	81.44%	4.51%	0.05%	6.70%	85.54%	7.76%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	119	8	0	57	299	165	0	155	956	66	0	37	473	44	0	2385
PEAK HR FACTOR :	0.375	0.661	0.500	0.000	0.838	0.804	0.699	0.000	0.824	0.892	0.750	0.000	0.617	0.882	0.846	0.000	0.962
	0.652				0.794				0.884				0.899				
PM	1	2	0	0	1	1	1	0	1	2	0	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	6	44	4	0	19	29	67	0	43	172	7	0	7	232	12	0	642
4:15 PM	2	32	3	0	12	23	56	0	50	179	8	0	6	252	7	0	630
4:30 PM	5	54	2	0	16	29	61	0	45	176	10	0	5	252	13	0	668
4:45 PM	2	55	1	0	17	33	66	0	47	204	10	0	5	289	9	0	738
5:00 PM	4	91	2	0	9	39	68	0	54	190	6	0	2	323	11	0	799
5:15 PM	2	37	5	0	3	24	74	0	54	194	4	0	5	266	10	0	678
5:30 PM	4	48	4	0	12	37	43	0	38	202	4	0	3	255	10	0	660
5:45 PM	2	28	4	0	4	25	45	0	41	158	7	0	4	242	9	0	569
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	27	389	25	0	92	239	480	0	372	1475	56	0	37	2111	81	0	5384
	6.12%	88.21%	5.67%	0.00%	11.34%	29.47%	59.19%	0.00%	19.55%	77.51%	2.94%	0.00%	1.66%	94.71%	3.63%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	13	237	10	0	45	125	269	0	200	764	30	0	17	1130	43	0	2883
PEAK HR FACTOR :	0.650	0.651	0.500	0.000	0.662	0.801	0.909	0.000	0.926	0.936	0.750	0.000	0.850	0.875	0.827	0.000	0.902
	0.670				0.946				0.952				0.885				

National Data & Surveying Services Intersection Turning Movement Count

Location: 3rd Ave & 13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-020
 Date: 5/10/2021

Data - Total

NS/EW Streets:	3rd Ave				3rd Ave				13th St				13th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	264
7:15 AM	2	3	0	0	1	4	4	0	5	158	3	0	0	89	0	0	366
7:30 AM	4	2	4	0	2	3	1	0	5	220	7	0	2	117	1	0	399
7:45 AM	3	6	3	0	2	11	3	0	18	246	7	0	1	108	3	0	461
8:00 AM	4	10	9	0	0	15	3	0	15	257	11	0	9	136	5	0	433
8:15 AM	5	20	6	0	1	17	6	0	8	221	11	0	9	139	4	0	444
8:30 AM	1	11	3	0	0	6	2	0	11	195	14	0	9	155	5	0	381
8:45 AM	4	10	7	0	2	8	6	0	8	207	6	0	3	132	2	0	389
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	23	63	35	0	8	66	28	0	79	1701	68	0	41	1002	23	0	3137
	19.01%	52.07%	28.93%	0.00%	7.84%	64.71%	27.45%	0.00%	4.27%	92.05%	3.68%	0.00%	3.85%	94.00%	2.16%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	16	38	22	0	5	46	13	0	52	919	43	0	28	538	17	0	1737
PEAK HR FACTOR :	0.800	0.475	0.611	0.000	0.625	0.676	0.542	0.000	0.722	0.894	0.768	0.000	0.778	0.868	0.850	0.000	0.942
	0.613				0.667				0.896				0.862				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	3	10	5	0	0	1	11	0	1	2	0	0	1	2	0	0	468
4:15 PM	4	6	8	0	0	1	4	0	4	184	4	0	3	243	0	0	457
4:30 PM	6	7	11	0	2	3	10	0	7	177	4	0	3	238	5	0	510
4:45 PM	6	14	6	0	2	4	9	0	4	192	4	0	2	266	3	0	548
5:00 PM	11	19	8	0	2	4	9	0	14	204	3	0	3	277	6	0	565
5:15 PM	6	12	9	0	5	3	15	0	6	181	2	0	3	308	4	0	539
5:30 PM	8	12	8	0	0	7	5	0	6	201	5	0	8	277	3	0	494
5:45 PM	7	2	13	0	3	2	7	0	3	198	4	0	1	247	1	0	463
	0	3	1	0	0	3	1	0	5	175	2	0	2	249	4	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	51	82	68	0	12	24	62	0	49	1512	28	0	25	2105	26	0	4044
	25.37%	40.80%	33.83%	0.00%	12.24%	24.49%	63.27%	0.00%	3.08%	95.15%	1.76%	0.00%	1.16%	97.63%	1.21%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	29	52	34	0	9	17	39	0	30	778	14	0	16	1128	16	0	2162
PEAK HR FACTOR :	0.659	0.684	0.773	0.000	0.450	0.607	0.650	0.000	0.536	0.953	0.700	0.000	0.500	0.916	0.667	0.000	0.957
	0.757				0.707				0.930				0.921				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 1\US 27\Veterans Pkwy & 13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-021
 Date: 5/10/2021

Data - Total

NS/EW Streets:	SR 1\US 27\Veterans Pkwy				SR 1\US 27\Veterans Pkwy				13th St				13th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2.5 NT	0.5 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	8	55	5	0	25	78	19	0	45	96	12	0	4	61	16	1	425
7:15 AM	15	68	16	0	32	128	34	1	59	144	23	0	13	74	24	1	632
7:30 AM	19	89	17	0	29	140	34	0	64	151	31	0	14	62	36	0	686
7:45 AM	23	115	21	0	58	152	40	2	56	175	29	0	15	83	24	1	794
8:00 AM	18	106	16	0	48	178	47	0	55	150	26	0	15	89	26	1	775
8:15 AM	23	123	38	0	33	194	53	0	63	126	29	0	27	89	30	0	828
8:30 AM	18	110	23	0	46	117	30	0	52	126	21	0	17	92	33	0	685
8:45 AM	23	112	33	0	43	148	45	0	65	131	21	0	12	72	42	0	747
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	147	778	169	0	314	1135	302	3	459	1099	192	0	117	622	231	4	5572
APPROACH %'s :	13.44%	71.12%	15.45%	0.00%	17.90%	64.71%	17.22%	0.17%	26.23%	62.80%	10.97%	0.00%	12.01%	63.86%	23.72%	0.41%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	83	433	92	0	168	664	174	2	238	602	115	0	71	323	116	2	3083
PEAK HR FACTOR :	0.902	0.880	0.605	0.000	0.724	0.856	0.821	0.250	0.930	0.860	0.927	0.000	0.657	0.907	0.806	0.500	0.931
	0.826				0.900				0.918				0.877				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2.5 NT	0.5 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	26	162	33	0	44	111	91	0	55	112	16	0	20	125	36	0	831
4:15 PM	50	159	29	0	51	118	84	1	43	112	18	0	14	121	37	1	838
4:30 PM	40	151	22	0	31	120	79	0	56	140	24	0	14	137	45	1	860
4:45 PM	37	152	25	0	36	120	96	2	54	128	24	0	17	162	32	0	885
5:00 PM	46	192	33	0	46	119	97	1	64	118	19	0	15	162	41	1	954
5:15 PM	29	139	31	0	49	119	105	1	49	146	17	0	20	164	51	0	920
5:30 PM	31	123	24	1	36	102	75	0	49	134	20	0	20	133	31	2	781
5:45 PM	33	105	17	1	40	109	79	0	57	127	13	0	13	150	32	1	777
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	292	1183	214	2	333	918	706	5	427	1017	151	0	133	1154	305	6	6846
APPROACH %'s :	17.27%	69.96%	12.66%	0.12%	16.97%	46.79%	35.98%	0.25%	26.77%	63.76%	9.47%	0.00%	8.32%	72.22%	19.09%	0.38%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	152	634	111	0	162	478	377	4	223	532	84	0	66	625	169	2	3619
PEAK HR FACTOR :	0.826	0.826	0.841	0.000	0.827	0.996	0.898	0.500	0.871	0.911	0.875	0.000	0.825	0.953	0.828	0.500	0.948
	0.827				0.932				0.953				0.917				

National Data & Surveying Services Intersection Turning Movement Count

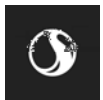
Location: 5th Ave & SR 22\13th St
 City: Columbus
 Control: Signalized

Project ID: 21-180119-022
 Date: 5/10/2021

Data - Total

NS/EW Streets:	5th Ave				5th Ave				SR 22\13th St				SR 22\13th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
7:00 AM	0	2	2	0	8	5	9	0	14	112	10	0	5	74	15	0	256
7:15 AM	2	6	4	0	16	14	16	0	20	160	8	0	7	102	16	0	371
7:30 AM	1	4	8	0	9	15	12	0	20	160	9	0	21	90	16	0	365
7:45 AM	0	4	2	0	16	15	16	0	24	216	13	0	17	111	29	0	463
8:00 AM	3	8	2	0	13	14	12	0	26	182	20	0	11	121	20	0	432
8:15 AM	1	8	10	0	13	14	16	0	13	162	12	0	24	123	12	0	408
8:30 AM	4	8	3	0	20	14	15	0	25	161	9	0	8	121	17	0	405
8:45 AM	2	7	6	0	19	15	17	0	23	172	5	0	9	116	19	0	410
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	13	47	37	0	114	106	113	0	165	1325	86	0	102	858	144	0	3110
APPROACH %'s :	13.40%	48.45%	38.14%	0.00%	34.23%	31.83%	33.93%	0.00%	10.47%	84.07%	5.46%	0.00%	9.24%	77.72%	13.04%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	8	28	17	0	62	57	59	0	88	721	54	0	60	476	78	0	1708
PEAK HR FACTOR :	0.500	0.875	0.425	0.000	0.775	0.950	0.922	0.000	0.846	0.834	0.675	0.000	0.625	0.967	0.672	0.000	0.922
	0.697				0.908				0.853				0.965				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
4:00 PM	2	6	11	0	20	9	11	0	13	158	6	0	13	160	18	0	427
4:15 PM	1	7	9	0	12	5	12	0	8	192	7	0	8	164	19	0	444
4:30 PM	1	9	6	0	24	14	24	0	11	158	9	0	9	182	31	0	478
4:45 PM	1	14	7	0	18	14	28	0	12	175	6	0	13	169	23	0	480
5:00 PM	3	17	12	0	20	19	27	0	11	186	9	0	14	206	24	0	548
5:15 PM	3	14	8	0	20	12	16	0	14	196	5	0	6	196	27	0	517
5:30 PM	0	4	5	0	16	18	22	0	14	187	9	0	5	181	23	0	484
5:45 PM	1	1	9	0	13	19	17	0	8	153	5	0	7	161	14	0	408
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	12	72	67	0	143	110	157	0	91	1405	56	0	75	1419	179	0	3786
APPROACH %'s :	7.95%	47.68%	44.37%	0.00%	34.88%	26.83%	38.29%	0.00%	5.86%	90.53%	3.61%	0.00%	4.48%	84.82%	10.70%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	49	32	0	74	63	93	0	51	744	29	0	38	752	97	0	2029
PEAK HR FACTOR :	0.583	0.721	0.667	0.000	0.925	0.829	0.830	0.000	0.911	0.949	0.806	0.000	0.679	0.913	0.898	0.000	0.926
	0.688				0.871				0.958				0.909				

Appendix D TRUCK PERCENTAGE CALCULATIONS



13th St W/O Broadway

		Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
11:45 AM	5/11/2021	EB	836	0	647	154	0	31	2	0	1	1	0	0	0	0	3.9%	0.2%
		WB	911	0	735	146	1	29	0	0	0	0	0	0	0	0	3.3%	0.0%
																AM DHV T%	3.6%	0.1%
																	3.5%	0.0%
4:30 PM	5/11/2021	EB	820	1	639	157	0	22	0	0	0	1	0	0	0	0	2.7%	0.1%
		WB	1,515	0	1,194	276	1	43	0	0	1	0	0	0	0	0	2.9%	0.1%
																PM DHV T%	2.8%	0.1%
																	3.0%	0.0%
24-hr T	5/11/2021	EB	12,603	11	9,659	2,487	5	401	22	1	9	8	0	0	0	0	3.4%	0.1%
		WB	13,654	7	10,891	2,320	6	418	5	0	6	1	0	0	0	0	3.1%	0.1%
																Daily T%	3.3%	0.1%
																	3.5%	0.0%

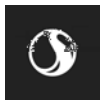
13th St E/O Broadway

		Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
11:45 AM	5/11/2021	EB	856	0	667	153	1	34	0	0	0	1	0	0	0	0	4.1%	0.1%
		WB	967	1	763	174	0	27	2	0	0	0	0	0	0	0	3.0%	0.0%
																AM DHV T%	3.5%	0.1%
																	3.5%	0.0%
4:30 PM	5/11/2021	EB	872	0	682	157	0	32	0	0	0	1	0	0	0	0	3.7%	0.1%
		WB	1,420	1	1,134	237	0	45	0	0	3	0	0	0	0	0	3.2%	0.2%
																PM DHV T%	3.4%	0.2%
																	3.5%	0.0%
24-hr T	5/11/2021	EB	12,898	7	10,023	2,414	5	419	13	2	8	7	0	0	0	0	3.4%	0.1%
		WB	13,664	10	10,831	2,360	5	426	11	2	15	4	0	0	0	0	3.2%	0.1%
																Daily T%	3.3%	0.1%
																	3.5%	0.0%

13th St W/O 3rd Ave

		Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
11:45 AM	5/11/2021	EB	837	2	624	180	1	28	0	0	1	1	0	0	0	0	3.5%	0.2%
		WB	834	3	653	160	0	18	0	0	0	0	0	0	0	0	2.2%	0.0%
																AM DHV T%	2.8%	0.1%
																	3.0%	0.0%
4:30 PM	5/11/2021	EB	818	2	622	171	0	21	1	0	1	0	0	0	0	0	2.7%	0.1%
		WB	1,160	2	925	201	0	28	2	1	1	0	0	0	0	0	2.7%	0.1%
																PM DHV T%	2.7%	0.1%
																	2.5%	0.0%
24-hr T	5/11/2021	EB	12,329	18	9,454	2,483	7	342	15		7	3	0	0	0	0	3.0%	0.1%
		WB	11,934	15	9,390	2,143	5	359	3	1	12	6	0	0	0	0	3.1%	0.2%
																Daily T%	3.0%	0.1%
																	3.0%	0.0%

Appendix E TRAFFIC PROJECTIONS



DHV TRAFFIC VOLUMES

Project: 8th St Roadway Improvements
 Client: Columbus, GA
 Date: 6/15/2021
 Growth Rate: 1.0%
 AM Peak Hour: 11:45 AM

Project Number: 171007027
 Computed by: J. Ekstedt
 Checked by: M. Holt
 PM Peak Hour: 4:30 PM

Intersection 1: 13th Street @ Broadway

2021 Existing Peak Hr TMC (RAW DATA)																
Broadway Avenue					Broadway Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	6	4	8	4	1	11	27	5	84	1176	56	0	67	483	3	0
Percentage	27.3%	18.2%	36.4%	18.2%	2.3%	25.0%	61.4%	11.4%	N/A	N/A	N/A	N/A	12.1%	87.3%	0.5%	0.0%
4:30 PM	64	37	80	27	8	44	181	27	68	823	66	0	126	1304	27	0
Percentage	30.8%	17.8%	38.5%	13.0%	3.1%	16.9%	69.6%	10.4%	7.1%	86.0%	6.9%	0.0%	8.6%	89.5%	1.9%	0.0%
BY APPROACH	IN			OUT				IN				OUT				
AM:	22			138				44				96				
PM:	208			263				260				159				
4-HOUR TOTAL	144	72	214	73	20	103	379	55	270	3652	228	0	386	3264	61	0
Percentage	28.6%	14.3%	42.5%	14.5%	3.6%	18.5%	68.0%	9.9%	6.5%	88.0%	5.5%	0.0%	10.4%	88.0%	1.6%	0.0%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)																
Broadway Avenue					Broadway Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	6	4	8	4	1	12	28	5	88	1234	59	0	70	507	3	0
Percentage	27.3%	18.2%	36.4%	18.2%	2.3%	27.3%	63.6%	11.4%	N/A	N/A	N/A	N/A	12.1%	87.4%	0.5%	0.0%
4:30 PM	64	37	80	27	8	44	181	27	68	823	66	0	126	1304	27	0
Percentage	30.8%	17.8%	38.5%	13.0%	3.1%	16.9%	69.6%	10.4%	7.1%	86.0%	6.9%	0.0%	8.6%	89.5%	1.9%	0.0%
BY APPROACH	IN			OUT				IN				OUT				
AM:	22			145				46				100				
PM:	208			263				260				159				
4-HOUR TOTAL	144	72	214	73	20	103	379	55	270	3652	228	0	386	3264	61	0
Percentage	28.6%	14.3%	42.5%	14.5%	3.6%	18.5%	68.0%	9.9%	6.5%	88.0%	5.5%	0.0%	10.4%	88.0%	1.6%	0.0%

2021 Existing Peak Hr TMC (Rounded)

2021 Existing Peak Hr TMC (Rounded)																
Broadway Avenue					Broadway Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	5	5	10	5	5	10	30	5	90	1235	60	0	70	505	5	0
PM:	65	35	80	25	10	45	180	25	70	825	65	0	125	1305	25	0
BY APPROACH	IN			OUT				IN				OUT				
AM:	25			165				140				45				
PM:	205			440				235				235				
Balanced between intersection 1 & 2																

2044 No Build/Build DHV

2044 No Build/Build DHV																
Broadway Avenue					Broadway Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	5	5	15	5	5	15	40	5	115	1555	75	0	90	635	5	0
PM:	80	45	100	30	15	55	225	30	90	1035	80	0	155	1640	30	0
BY APPROACH	IN			OUT				IN				OUT				
AM:	30			185				65				130				
PM:	255			320				325				195				

DHV TRAFFIC VOLUMES

Project: **8th St Roadway Improvements**
 Client: **Columbus, GA**
 Date: **6/15/2021**
 Growth Rate: **1.0%**
 AM Peak Hour: **11:45 AM**

Project Number: **171007027**
 Computed by: **J. Ekstedt**
 Checked by: **M. Holt**
 PM Peak Hour: **4:30 PM**

Intersection 2: 13th Street @ 1st Avenue

2021 Existing Peak Hr TMC (RAW DATA)																
	1st Avenue				1st Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	13	17	56	10	4	31	16	1	22	1118	54	0	88	529	26	0
Percentage	13.5%	17.7%	58.3%	10.4%	7.7%	59.6%	30.8%	1.9%	1.8%	93.6%	4.5%	0.0%	13.7%	82.3%	4.0%	0.0%
4:30 PM	64	32	119	9	4	9	21	3	17	866	22	0	37	1374	5	0
Percentage	28.6%	14.3%	53.1%	4.0%	10.8%	24.3%	56.8%	8.1%	1.9%	95.7%	2.4%	0.0%	2.6%	97.0%	0.4%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	96			183	52			66	1194			558	643			1178
PM:	224			77	37			57	905			1459	1416			989
4-HOUR TOTAL	130	80	318	30	14	56	63	16	74	3696	114	0	232	3521	62	0
Percentage	23.3%	14.3%	57.0%	5.4%	N/A	N/A	N/A	N/A	1.9%	95.2%	2.9%	0.0%	6.1%	92.3%	1.6%	0.0%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

	1st Avenue				1st Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	14	18	60	11	4	33	17	1	23	1163	56	0	97	583	29	0
Percentage	13.6%	17.5%	58.3%	10.7%	7.3%	60.0%	30.9%	1.8%	1.9%	93.6%	4.5%	0.0%	13.7%	82.2%	4.1%	0.0%
4:30 PM	64	32	119	9	4	9	21	3	17	866	22	0	37	1374	5	0
Percentage	28.6%	14.3%	53.1%	4.0%	10.8%	24.3%	56.8%	8.1%	1.9%	95.7%	2.4%	0.0%	2.6%	97.0%	0.4%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	103			197	55			71	1242			614	709			1227
PM:	224			77	37			57	905			1459	1416			989
4-HOUR TOTAL	130	80	318	30	14	56	63	16	74	3696	114	0	232	3521	62	0
Percentage	23.3%	14.3%	57.0%	5.4%	N/A	N/A	N/A	N/A	1.9%	95.2%	2.9%	0.0%	6.1%	92.3%	1.6%	0.0%

2021 Existing Peak Hr TMC (Calculated & Rounded)

	1st Avenue				1st Avenue				13th Street				13th Street				
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN	
AM:	15	20	60	10	5	35	15	5	25	1165	55	0	95	585	30	0	
PM:	65	30	120	10	5	10	20	5	15	865	20	0	35	1375	5	0	
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT	
AM:	95			280	185			130	75			1245	1860	615			710
PM:	215			280	65			85	50			900	2360	1460			1415
Balanced between intersection 1 & 2																	

2044 No Build/Build DHV

	1st Avenue				1st Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	20	25	75	15	5	45	20	5	30	1465	70	0	120	735	40	0
PM:	80	40	150	15	5	15	25	5	20	1085	25	0	45	1730	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	135			250	75			100	1565			775	895			1545
PM:	285			100	50			70	1130			1835	1780			1240

DHV TRAFFIC VOLUMES

Project: 8th St Roadway Improvements
 Client: Columbus, GA
 Date: 6/15/2021
 Growth Rate: 1.0%
 AM Peak Hour: 11:45 AM

Project Number: 171007027
 Computed by: J. Ekstedt
 Checked by: M. Holt
 PM Peak Hour: 4:30 PM

Intersection 3: 13th Street @ 2nd Avenue

2021 Existing Peak Hr TMC (RAW DATA)																
	2nd Avenue				2nd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	6	119	8	0	57	299	165	0	155	956	66	0	37	473	44	0
Percentage	4.5%	89.5%	6.0%	0.0%	10.9%	57.4%	31.7%	0.0%	13.2%	81.2%	5.6%	0.0%	6.7%	85.4%	7.9%	0.0%
4:30 PM	13	237	10	0	45	125	269	0	200	764	30	0	17	1130	43	0
Percentage	5.0%	91.2%	3.8%	0.0%	10.3%	28.5%	61.3%	0.0%	20.1%	76.9%	3.0%	0.0%	1.4%	95.0%	3.6%	0.0%
BY APPROACH	IN			OUT				IN				OUT				
AM:	133			402				521				318				
PM:	260			172				439				480				
4-HOUR TOTAL	42	571	48	0	190	665	755	0	670	3208	152	1	107	3004	162	0
Percentage	6.4%	86.4%	7.3%	0.0%	11.8%	41.3%	46.9%	0.0%	16.6%	79.6%	3.8%	0.0%	3.3%	91.8%	4.9%	0.0%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

	2nd Avenue				2nd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	6	129	9	0	62	323	179	0	171	1054	73	0	39	502	47	0
Percentage	4.2%	89.6%	6.3%	0.0%	11.0%	57.3%	34.4%	0.0%	13.2%	81.2%	5.6%	0.0%	6.6%	85.4%	8.0%	0.0%
4:30 PM	13	237	10	0	45	125	269	0	200	764	30	0	17	1130	43	0
Percentage	5.0%	91.2%	3.8%	0.0%	10.3%	28.5%	61.3%	0.0%	20.1%	76.9%	3.0%	0.0%	1.4%	95.0%	3.6%	0.0%
BY APPROACH	IN			OUT				IN				OUT				
AM:	144			435				564				347				
PM:	260			172				439				480				
4-HOUR TOTAL	42	571	48	0	190	665	755	0	670	3208	152	1	107	3004	162	0
Percentage	6.4%	86.4%	7.3%	0.0%	11.8%	41.3%	46.9%	0.0%	16.6%	79.6%	3.8%	0.0%	3.3%	91.8%	4.9%	0.0%

2021 Existing Peak Hr TMC (Calculated & Rounded)

	2nd Avenue				2nd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	5	130	10	0	60	325	180	0	170	1055	75	0	40	500	45	0
PM:	15	235	10	0	45	125	270	0	200	765	30	0	15	1130	45	0
BY APPROACH	IN			OUT				IN				OUT				
AM:	145			585				910				565				
PM:	260			430				170				440				
Balanced between intersection 1 & 2																

2044 No Build/Build DHV

	2nd Avenue				2nd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	5	165	15	0	75	410	225	0	215	1325	95	0	50	630	55	0
PM:	20	295	15	0	55	155	340	0	250	960	40	0	20	1420	55	0
BY APPROACH	IN			OUT				IN				OUT				
AM:	185			555				710				435				
PM:	330			215				550				600				

DHV TRAFFIC VOLUMES

Project: **8th St Roadway Improvements**
 Client: **Columbus, GA**
 Date: **6/15/2021**
 Growth Rate: **1.0%**
 AM Peak Hour: **11:45 AM**

Project Number: **171007027**
 Computed by: **J. Ekstedt**
 Checked by: **M. Holt**
 PM Peak Hour: **4:30 PM**

Intersection 4: 13th Street @ 3rd Avenue

2021 Existing Peak Hr TMC (RAW DATA)																
	3rd Avenue				3rd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	16	38	22	0	5	46	13	0	52	919	43	0	28	538	17	0
Percentage	21.1%	50.0%	28.9%	0.0%	7.8%	71.9%	20.3%	0.0%	5.1%	90.6%	4.2%	0.0%	4.8%	92.3%	2.9%	0.0%
4:30 PM	29	52	34	0	9	17	39	0	30	778	14	0	16	1128	16	0
Percentage	25.2%	45.2%	29.6%	0.0%	13.8%	26.2%	60.0%	0.0%	3.6%	94.6%	1.7%	0.0%	1.4%	97.2%	1.4%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	76			117	64			107	1014			567	583			946
PM:	115			47	65			98	822			1196	1160			821
4-HOUR TOTAL	74	145	103	0	20	90	90	0	128	3213	96	0	66	3107	49	0
Percentage	23.0%	45.0%	32.0%	0.0%	10.0%	45.0%	45.0%	0.0%	3.7%	93.5%	2.8%	0.0%	2.0%	96.4%	1.5%	0.0%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

	3rd Avenue				3rd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	17	41	24	0	5	49	14	0	55	971	45	0	31	587	19	0
Percentage	20.7%	50.0%	29.3%	0.0%	7.4%	72.1%	20.6%	0.0%	5.1%	90.7%	4.2%	0.0%	4.9%	92.2%	3.0%	0.0%
12:00 AM	29	52	34	0	9	17	39	0	30	778	14	0	16	1128	16	0
Percentage	25.2%	45.2%	29.6%	0.0%	13.8%	26.2%	60.0%	0.0%	3.6%	94.6%	1.7%	0.0%	1.4%	97.2%	1.4%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	82			125	68			115	1071			618	637			1000
PM:	115			47	65			98	822			1196	1160			821
4-HOUR TOTAL	74	145	103	0	20	90	90	0	128	3213	96	0	66	3107	49	0
Percentage	23.0%	45.0%	32.0%	0.0%	10.0%	45.0%	45.0%	0.0%	3.7%	93.5%	2.8%	0.0%	2.0%	96.4%	1.5%	0.0%

2021 Existing Peak Hr TMC (Calculated & Rounded)

	3rd Avenue				3rd Avenue				13th Street				13th Street									
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN						
AM:	15	40	25	0	5	50	15	0	55	970	45	0	30	585	20	0						
PM:	30	50	35	0	10	15	40	0	30	780	15	0	15	1130	15	0						
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT						
AM:	80			205	125			70	185			115	1070			1685	615			635	1635	1000
PM:	115			160	45			65	160			95	825			2025	1200			1160	1985	825

Balanced between intersection 1 & 2

2044 No Build/Build DHV

	3rd Avenue				3rd Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	20	50	30	0	5	65	20	0	70	1220	55	0	40	735	25	0
PM:	40	65	45	0	15	20	50	0	40	980	20	0	20	1420	20	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	100			160	90			145	1345			775	800			1255
PM:	150			60	85			125	1040			1510	1460			1040

DHV TRAFFIC VOLUMES

Project: <u>8th St Roadway Improvements</u>	Project Number: <u>171007027</u>
Client: <u>Columbus, GA</u>	Computed by: <u>J. Ekstedt</u>
Date: <u>6/15/2021</u>	Checked by: <u>M. Holt</u>
Growth Rate: <u>1.0%</u>	
AM Peak Hour: <u>11:45 AM</u>	PM Peak Hour: <u>4:30 PM</u>

Intersection 5: 13th Street @ Veterans Parkway

2021 Existing Peak Hr TMC (RAW DATA)																
	Veterans Parkway				Veterans Parkway				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	83	433	92	0	168	664	174	2	238	602	115	0	71	323	116	2
Percentage	13.7%	71.2%	15.1%	0.0%	16.7%	65.9%	17.3%	0.2%	24.9%	63.0%	12.0%	0.0%	13.9%	63.1%	22.7%	0.4%
4:30 PM	152	634	111	0	162	478	377	4	223	532	84	0	66	625	169	2
Percentage	16.9%	70.7%	12.4%	0.0%	15.9%	46.8%	36.9%	0.4%	26.6%	63.4%	10.0%	0.0%	7.7%	72.5%	19.6%	0.2%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	608			850	1008			789	955			580	512			864
PM:	897			628	1021			1030	839			1154	862			807
4-HOUR TOTAL	439	1961	383	2	647	2053	1008	8	886	2116	343	0	250	1776	536	10
Percentage	15.8%	70.4%	13.8%	0.1%	17.4%	55.2%	27.1%	0.2%	26.5%	63.3%	10.3%	0.0%	9.7%	69.1%	20.8%	0.4%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

	Veterans Parkway				Veterans Parkway				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	89	467	99	0	181	715	187	2	259	655	125	0	76	345	124	2
Percentage	13.6%	71.3%	15.1%	0.0%	16.7%	65.9%	17.2%	0.2%	24.9%	63.0%	12.0%	0.0%	13.9%	63.1%	22.7%	0.4%
12:00 AM	152	634	111	0	162	478	377	4	223	532	84	0	66	625	169	2
Percentage	16.9%	70.7%	12.4%	0.0%	15.9%	46.8%	36.9%	0.4%	26.6%	63.4%	10.0%	0.0%	7.7%	72.5%	19.6%	0.2%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	655			916	1085			852	1039			621	547			937
PM:	897			628	1021			1030	839			1154	862			807
4-HOUR TOTAL	439	1961	383	2	647	2053	1008	8	886	2116	343	0	250	1776	536	10
Percentage	15.8%	70.4%	13.8%	0.1%	17.4%	55.2%	27.1%	0.2%	26.5%	63.3%	10.3%	0.0%	9.7%	69.1%	20.8%	0.4%

2021 Existing Peak Hr TMC (Calculated & Rounded)

	Veterans Parkway				Veterans Parkway				13th Street				13th Street						
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN			
AM:	90	465	100	0	180	715	185	5	260	655	125	0	75	345	125	5			
PM:	150	635	110	0	160	480	375	5	225	530	85	0	65	625	170	5			
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT			
AM:	655	1570		915	1080	1930		850	1040	1660		620	545	1480		935			
PM:	895	1525		630	1015	2045		1030	840	1990		1150	860	1660		800			
									Balanced between intersection 1 & 2										

2044 No Build/Build DHV

	Veterans Parkway				Veterans Parkway				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	115	585	125	0	225	900	235	5	325	825	155	0	95	435	155	5
PM:	190	800	140	0	200	605	470	5	285	665	105	0	80	785	215	5
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	825			1150	1365			1070	1305			785	690			1180
PM:	1130			790	1280			1305	1055			1445	1085			1010

DHV TRAFFIC VOLUMES

Project: 8th St Roadway Improvements
 Client: Columbus, GA
 Date: 6/15/2021
 Growth Rate: 1.0%
 AM Peak Hour: 11:45 AM

Project Number: 171007027
 Computed by: J. Ekstedt
 Checked by: M. Holt
 PM Peak Hour: 4:30 PM

Intersection 6: 13th Street @ 5th Avenue

2021 Existing Peak Hr TMC (RAW DATA)																
	5th Avenue				5th Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:45 AM	8	28	17	0	62	57	59	0	88	721	54	0	60	476	78	0
Percentage	15.1%	52.8%	32.1%	0.0%	34.8%	32.0%	33.1%	0.0%	10.2%	83.5%	6.3%	0.0%	9.8%	77.5%	12.7%	0.0%
4:30 PM	8	54	33	0	82	59	95	0	48	715	29	0	42	753	105	0
Percentage	8.4%	56.8%	34.7%	0.0%	34.7%	25.0%	40.3%	0.0%	6.1%	90.3%	3.7%	0.0%	4.7%	83.7%	11.7%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	53			171	178			194	863			543	614			800
PM:	95			130	236			207	792			856	900			830
4-HOUR TOTAL	25	119	104	0	257	216	270	0	256	2730	142	0	177	2277	323	0
Percentage	10.1%	48.0%	41.9%	0.0%	34.6%	29.1%	36.3%	0.0%	8.2%	87.3%	4.5%	0.0%	6.4%	82.0%	11.6%	0.0%

2021 Existing Peak Hr TMC (Converted the AM Peaks to 11:45 AM Peak)

	5th Avenue				5th Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
11:45 AM	8	29	18	0	65	60	62	0	92	753	56	0	63	497	81	0
Percentage	14.5%	52.7%	32.7%	0.0%	34.8%	32.1%	33.2%	0.0%	10.2%	83.6%	6.2%	0.0%	9.8%	77.5%	12.6%	0.0%
12:00 AM	8	54	33	0	82	59	95	0	48	715	29	0	42	753	105	0
Percentage	8.4%	56.8%	34.7%	0.0%	34.7%	25.0%	40.3%	0.0%	6.1%	90.3%	3.7%	0.0%	4.7%	83.7%	11.7%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	55			179	187			202	901			567	641			836
PM:	95			130	236			207	792			856	900			830
4-HOUR TOTAL	25	119	104	0	257	216	270	0	256	2730	142	0	177	2277	323	0
Percentage	10.1%	48.0%	41.9%	0.0%	34.6%	29.1%	36.3%	0.0%	8.2%	87.3%	4.5%	0.0%	6.4%	82.0%	11.6%	0.0%

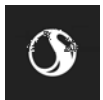
2021 Existing Peak Hr TMC (Calculated & Rounded)

	5th Avenue				5th Avenue				13th Street				13th Street							
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN				
AM:	10	30	20	0	65	60	60	0	90	755	55	0	65	495	80	0				
PM:	10	55	35	0	80	60	95	0	50	715	30	0	40	755	105	0				
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT				
AM:	60			240	185			385	200			900	1465			565	640	1480	840	
PM:	100			230	130			235	445			210	795			1655	860	900	1730	830
Balanced between intersection 1 & 2																				

2044 No Build/Build DHV

	5th Avenue				5th Avenue				13th Street				13th Street			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	15	40	25	0	80	75	75	0	115	950	70	0	80	620	100	0
PM:	15	70	45	0	100	75	120	0	65	900	40	0	50	950	130	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	80			225	230			255	1135			710	800			1055
PM:	130			165	295			265	1005			1085	1130			1045

Appendix F SYNCHRO REPORTS



HCM 6th Signalized Intersection Capacity Analysis

1: Broadway & 13th Street 2021 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	↶
Traffic Volume (veh/h)	90	1235	60	70	505	5	10	5	10	10	10	30
Future Volume (veh/h)	90	1235	60	70	505	5	10	5	10	10	10	30
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.98	1.00		1.00	0.98		0.98	0.98		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1900	1900	1900	1633	1633	1900
Adj Flow Rate, veh/h	125	1453	77	83	574	13	20	10	25	40	14	62
Peak Hour Factor	0.72	0.85	0.78	0.84	0.88	0.38	0.50	0.50	0.40	0.25	0.69	0.48
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	18	18	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	686	2275	120	272	2350	53	152	51	128	148	43	170
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
Prop Arrive On Green	0.04	0.66	0.66	0.08	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Unsig. Movement Delay												
Ln Grp Delay, s/veh	6.0	14.7	14.7	10.8	0.5	0.5	53.1	0.0	47.8	50.2	0.0	49.6
Ln Grp LOS	A	B	B	B	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1655			670			55			116	
Approach Delay, s/veh		14.1			1.7			49.7			49.9	
Approach LOS		B			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		7.0			
Phs Duration (G+Y+Rc), s		11.7	86.0		22.3	11.9	85.8		22.3			
Change Period (Y+Rc), s		7.0	7.0		7.5	7.0	7.0		7.5			
Max Green (Gmax), s		17.0	55.0		26.5	17.0	55.0		26.5			
Max Allow Headway (MAH), s		3.8	7.3		4.9	3.8	7.2		4.7			
Max Q Clear (g_c+I1), s		3.8	31.9		10.2	4.7	2.0		8.5			
Green Ext Time (g_e), s		0.1	18.4		0.1	0.2	8.5		0.4			
Prob of Phs Call (p_c)		0.94	1.00		1.00	0.98	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.80		0.00	0.00	0.01		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			1321	1810			773			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3456		413		3580		348			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			183		1033		81		1375			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L+T			

HCM 6th Signalized Intersection Capacity Analysis
 1: Broadway & 13th Street 2021 AM Peak

07/22/2021

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	83	0	0	20	125	0	0	54
Grp Sat Flow (s), veh/h/ln	1810	0	0	1321	1810	0	0	1121
Q Serve Time (g_s), s	1.8	0.0	0.0	1.7	2.7	0.0	0.0	3.9
Cycle Q Clear Time (g_c), s	1.8	0.0	0.0	8.2	2.7	0.0	0.0	6.5
Perm LT Sat Flow (s_l), veh/h/ln	345	0	0	1321	841	0	0	1366
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	78.8	0.0	0.0	14.8	78.8	0.0	0.0	14.8
Perm LT Serve Time (g_u), s	49.1	0.0	0.0	8.4	78.8	0.0	0.0	12.2
Perm LT Q Serve Time (g_ps), s	8.9	0.0	0.0	1.7	0.0	0.0	0.0	3.9
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.74
Lane Grp Cap (c), veh/h	272	0	0	152	686	0	0	191
V/C Ratio (X)	0.31	0.00	0.00	0.13	0.18	0.00	0.00	0.28
Avail Cap (c_a), veh/h	458	0	0	281	868	0	0	314
Upstream Filter (I)	0.97	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	10.2	0.0	0.0	52.7	5.9	0.0	0.0	49.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.4	0.1	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
Control Delay (d), s/veh	10.8	0.0	0.0	53.1	6.0	0.0	0.0	50.2
1st-Term Q (Q1), veh/ln	0.6	0.0	0.0	0.6	1.0	0.0	0.0	1.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.6	0.0	0.0	0.6	1.0	0.0	0.0	1.6
%ile Storage Ratio (RQ%)	0.32	0.00	0.00	0.02	0.17	0.00	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	751	0	0	0	287	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1791	0	0
Q Serve Time (g_s), s	0.0	29.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	29.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1179	0	0	0	1175	0	0
V/C Ratio (X)	0.00	0.64	0.00	0.00	0.00	0.24	0.00	0.00
Avail Cap (c_a), veh/h	0	1179	0	0	0	1175	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.97	0.00	0.00
Uniform Delay (d1), s/veh	0.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.6	0.0	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
Control Delay (d), s/veh	0.0	14.7	0.0	0.0	0.0	0.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 1: Broadway & 13th Street 2021 AM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	11.9	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.26	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	779	0	35	0	300	0	62
Grp Sat Flow (s), veh/h/ln	0	1847	0	1446	0	1870	0	1375
Q Serve Time (g_s), s	0.0	29.9	0.0	2.6	0.0	0.0	0.0	5.0
Cycle Q Clear Time (g_c), s	0.0	29.9	0.0	2.6	0.0	0.0	0.0	5.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.10	0.00	0.71	0.00	0.04	0.00	1.00
Lane Grp Cap (c), veh/h	0	1216	0	179	0	1228	0	170
V/C Ratio (X)	0.00	0.64	0.00	0.20	0.00	0.24	0.00	0.37
Avail Cap (c_a), veh/h	0	1216	0	319	0	1228	0	304
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.97	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.1	0.0	47.2	0.0	0.0	0.0	48.3
Incr Delay (d2), s/veh	0.0	2.6	0.0	0.5	0.0	0.5	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
Control Delay (d), s/veh	0.0	14.7	0.0	47.8	0.0	0.5	0.0	49.6
1st-Term Q (Q1), veh/ln	0.0	11.5	0.0	0.9	0.0	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	12.4	0.0	1.0	0.0	0.2	0.0	1.8
%ile Storage Ratio (RQ%)	0.00	0.27	0.00	0.04	0.00	0.01	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

2: 1st Avenue & 13th Street 2021 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↶	↷		↷	↶
Traffic Volume (veh/h)	25	1165	55	95	585	30	25	20	60	10	35	15
Future Volume (veh/h)	25	1165	55	95	585	30	25	20	60	10	35	15
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1811	1811	1870	1900	1900	1900
Adj Flow Rate, veh/h	36	1404	86	176	643	51	38	38	90	30	50	22
Peak Hour Factor	0.69	0.83	0.64	0.54	0.91	0.59	0.65	0.53	0.67	0.33	0.70	0.67
Percent Heavy Veh, %	0	1	1	0	1	1	6	6	2	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	637	2359	144	399	2386	189	138	141	127	99	142	63
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
Prop Arrive On Green	0.06	1.00	1.00	0.10	1.00	1.00	0.09	0.09	0.09	0.09	0.09	0.09
Unsig. Movement Delay												
Ln Grp Delay, s/veh	4.8	1.6	1.6	5.3	0.5	0.5	56.8	53.0	67.5	53.9	0.0	54.7
Ln Grp LOS	A	A	A	A	A	A	E	D	E	D	A	D
Approach Vol, veh/h		1526			870			166			102	
Approach Delay, s/veh		1.7			1.5			61.7			54.3	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		7.0	1.1	4.0		8.0			
Phs Duration (G+Y+Rc), s		12.6	90.1		17.3	10.0	92.7		17.3			
Change Period (Y+Rc), s		6.5	7.5		6.5	6.5	7.5		6.5			
Max Green (Gmax), s		16.5	49.5		33.5	16.5	49.5		33.5			
Max Allow Headway (MAH), s		4.8	7.3		6.6	4.8	7.3		7.4			
Max Q Clear (g_c+I1), s		5.6	2.0		9.5	2.7	2.0		6.8			
Green Ext Time (g_e), s		0.5	31.0		1.4	0.1	10.5		1.0			
Prob of Phs Call (p_c)		1.00	1.00		1.00	0.70	1.00		1.00			
Prob of Max Out (p_x)		0.02	0.54		0.00	0.00	0.03		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			866	1810			591			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3429		1566		3362		1572			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			209		1403		266		699			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			L+TL (Pr/Pm)			L+T				

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	176	0	0	38	36	0	0	58
Grp Sat Flow (s), veh/h/ln	1810	0	0	866	1810	0	0	1458
Q Serve Time (g_s), s	3.6	0.0	0.0	3.4	0.7	0.0	0.0	2.1
Cycle Q Clear Time (g_c), s	3.6	0.0	0.0	7.0	0.7	0.0	0.0	4.8
Perm LT Sat Flow (s_l), veh/h/ln	359	0	0	1349	762	0	0	1282
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	82.6	0.0	0.0	10.8	82.6	0.0	0.0	10.8
Perm LT Serve Time (g_u), s	82.6	0.0	0.0	7.3	82.6	0.0	0.0	8.1
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	3.4	0.0	0.0	0.0	2.1
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.52
Lane Grp Cap (c), veh/h	399	0	0	138	637	0	0	177
V/C Ratio (X)	0.44	0.00	0.00	0.27	0.06	0.00	0.00	0.33
Avail Cap (c_a), veh/h	556	0	0	381	833	0	0	464
Upstream Filter (I)	0.93	0.00	0.00	1.00	0.76	0.00	0.00	1.00
Uniform Delay (d1), s/veh	4.3	0.0	0.0	54.5	4.8	0.0	0.0	51.7
Incr Delay (d2), s/veh	1.0	0.0	0.0	2.3	0.0	0.0	0.0	2.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.3	0.0	0.0	56.8	4.8	0.0	0.0	53.9
1st-Term Q (Q1), veh/ln	1.1	0.0	0.0	1.1	0.2	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	1.2	0.0	0.0	1.2	0.2	0.0	0.0	1.8
%ile Storage Ratio (RQ%)	0.31	0.00	0.00	0.05	0.15	0.00	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	731	0	38	0	342	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	1566	0	1791	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1232	0	141	0	1271	0	0
V/C Ratio (X)	0.00	0.59	0.00	0.27	0.00	0.27	0.00	0.00
Avail Cap (c_a), veh/h	0	1232	0	437	0	1271	0	0
Upstream Filter (I)	0.00	0.76	0.00	1.00	0.00	0.93	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	50.9	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.0	2.1	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
Control Delay (d), s/veh	0.0	1.6	0.0	53.0	0.0	0.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	0.2	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.6	0.0	1.2	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.05	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	759	0	90	0	352	0	44
Grp Sat Flow (s), veh/h/ln	0	1847	0	1403	0	1837	0	1404
Q Serve Time (g_s), s	0.0	0.0	0.0	7.5	0.0	0.0	0.0	3.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	7.5	0.0	0.0	0.0	3.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.11	0.00	1.00	0.00	0.14	0.00	0.50
Lane Grp Cap (c), veh/h	0	1271	0	127	0	1304	0	127
V/C Ratio (X)	0.00	0.60	0.00	0.71	0.00	0.27	0.00	0.35
Avail Cap (c_a), veh/h	0	1271	0	392	0	1304	0	392
Upstream Filter (I)	0.00	0.76	0.00	1.00	0.00	0.93	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	53.0	0.0	0.0	0.0	51.3
Incr Delay (d2), s/veh	0.0	1.6	0.0	14.5	0.0	0.5	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
Control Delay (d), s/veh	0.0	1.6	0.0	67.5	0.0	0.5	0.0	54.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.6	0.0	0.0	0.0	1.3
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.5	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.6	0.0	3.1	0.0	0.2	0.0	1.4
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.14	0.00	0.01	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (veh/h)	170	1055	75	40	500	45	5	130	10	60	325	180
Future Volume (veh/h)	170	1055	75	40	500	45	5	130	10	60	325	180
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1900	1885	1885	1841	1870	1870
Adj Flow Rate, veh/h	207	1185	100	65	568	53	13	197	20	71	406	257
Peak Hour Factor	0.82	0.89	0.75	0.62	0.88	0.85	0.38	0.66	0.50	0.84	0.80	0.70
Percent Heavy Veh, %	1	1	1	0	0	0	0	1	1	4	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	616	1868	157	354	1738	162	93	421	43	233	468	397
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
Prop Arrive On Green	0.15	1.00	1.00	0.07	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25
Unsig. Movement Delay												
Ln Grp Delay, s/veh	10.2	2.2	2.1	12.0	0.9	0.9	56.6	0.0	38.9	47.2	56.7	43.5
Ln Grp LOS	B	A	A	B	A	A	E	A	D	D	E	D
Approach Vol, veh/h		1492			686			230			734	
Approach Delay, s/veh		3.3			1.9			39.9			51.1	
Approach LOS		A			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		10.4	73.1		36.5	15.0	68.5		36.5			
Change Period (Y+Rc), s		6.0	6.0		6.5	6.0	6.0		6.5			
Max Green (Gmax), s		15.0	52.0		34.5	20.0	47.0		34.5			
Max Allow Headway (MAH), s		3.8	7.3		5.3	3.8	7.3		5.8			
Max Q Clear (g_c+I1), s		4.0	2.0		28.9	8.6	2.0		26.9			
Green Ext Time (g_e), s		0.1	26.0		0.6	0.4	9.0		3.1			
Prob of Phs Call (p_c)		0.89	1.00		1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.35		0.87	0.00	0.02		0.78			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			784	1795			1146			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3344		1684		3338		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			282		171		311		1585			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	65	0	0	13	207	0	0	71
Grp Sat Flow (s), veh/h/ln	1810	0	0	784	1795	0	0	1146
Q Serve Time (g_s), s	2.0	0.0	0.0	1.9	6.6	0.0	0.0	6.7
Cycle Q Clear Time (g_c), s	2.0	0.0	0.0	26.9	6.6	0.0	0.0	18.7
Perm LT Sat Flow (s_l), veh/h/ln	437	0	0	784	809	0	0	1146
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	62.5	0.0	0.0	30.0	63.1	0.0	0.0	30.0
Perm LT Serve Time (g_u), s	62.5	0.0	0.0	5.1	62.5	0.0	0.0	18.1
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.9	0.2	0.0	0.0	6.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	354	0	0	93	616	0	0	233
V/C Ratio (X)	0.18	0.00	0.00	0.14	0.34	0.00	0.00	0.31
Avail Cap (c_a), veh/h	514	0	0	122	781	0	0	276
Upstream Filter (I)	0.97	0.00	0.00	1.00	0.71	0.00	0.00	1.00
Uniform Delay (d1), s/veh	11.7	0.0	0.0	56.0	10.0	0.0	0.0	46.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.2	0.0	0.0	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	12.0	0.0	0.0	56.6	10.2	0.0	0.0	47.2
1st-Term Q (Q1), veh/ln	0.8	0.0	0.0	0.4	2.2	0.0	0.0	1.9
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.8	0.0	0.0	0.4	2.2	0.0	0.0	2.0
%ile Storage Ratio (RQ%)	0.23	0.00	0.00	0.13	0.71	0.00	0.00	0.69
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	634	0	0	0	307	0	406
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
Lane Grp Cap (c), veh/h	0	1001	0	0	0	940	0	468
V/C Ratio (X)	0.00	0.63	0.00	0.00	0.00	0.33	0.00	0.87
Avail Cap (c_a), veh/h	0	1001	0	0	0	940	0	538
Upstream Filter (I)	0.00	0.71	0.00	0.00	0.00	0.97	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.1
Incr Delay (d2), s/veh	0.0	2.2	0.0	0.0	0.0	0.9	0.0	13.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.2	0.0	0.0	0.0	0.9	0.0	56.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	1.8

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	13.2
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.00	0.00	0.02	0.00	0.63
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	651	0	217	0	314	0	257
Grp Sat Flow (s), veh/h/ln	0	1834	0	1854	0	1844	0	1585
Q Serve Time (g_s), s	0.0	0.0	0.0	11.9	0.0	0.0	0.0	17.4
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	11.9	0.0	0.0	0.0	17.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.09	0.00	0.17	0.00	1.00
Lane Grp Cap (c), veh/h	0	1025	0	464	0	960	0	397
V/C Ratio (X)	0.00	0.64	0.00	0.47	0.00	0.33	0.00	0.65
Avail Cap (c_a), veh/h	0	1025	0	533	0	960	0	456
Upstream Filter (I)	0.00	0.71	0.00	1.00	0.00	0.97	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	38.2	0.0	0.0	0.0	40.3
Incr Delay (d2), s/veh	0.0	2.1	0.0	0.7	0.0	0.9	0.0	3.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.1	0.0	38.9	0.0	0.9	0.0	43.5
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	5.4	0.0	0.0	0.0	6.8
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	0.2	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.6	0.0	5.5	0.0	0.2	0.0	7.1
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.22	0.00	0.02	0.00	0.34
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0




















Intersection Summary

HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2021 AM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	970	45	30	585	20	15	40	25	5	50	15
Future Volume (veh/h)	55	970	45	30	585	20	15	40	25	5	50	15
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.99	0.99		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1841	1885	1885	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	76	1090	58	38	672	24	19	83	41	8	74	28
Peak Hour Factor	0.72	0.89	0.77	0.78	0.87	0.85	0.80	0.48	0.61	0.63	0.68	0.54
Percent Heavy Veh, %	0	1	1	4	1	1	3	3	3	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	601	2462	131	403	2509	90	54	178	80	40	203	72
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
Prop Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.3	0.8	0.8	0.4	0.5	0.4	45.2	0.0	0.0	43.6	0.0	0.0
Ln Grp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1224			734			143			110	
Approach Delay, s/veh		0.8			0.4			45.2			43.6	
Approach LOS		A			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			6.0		8.0		6.0		8.0			
Phs Duration (G+Y+Rc), s			91.4		28.6		91.4		28.6			
Change Period (Y+Rc), s			6.0		6.5		6.0		6.5			
Max Green (Gmax), s			79.0		28.5		79.0		28.5			
Max Allow Headway (MAH), s			7.3		5.9		7.4		5.4			
Max Q Clear (g_c+I1), s			2.0		11.9		2.0		9.5			
Green Ext Time (g_e), s			27.8		0.8		12.5		0.5			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.13		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			761		111		482		44			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3459		966		3524		1100			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			184		433		126		391			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment			L		L+T+R		L		L+T+R			

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2021 AM Peak

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	76	0	143	0	38	0	110
Grp Sat Flow (s), veh/h/ln	0	761	0	1510	0	482	0	1535
Q Serve Time (g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	9.9	0.0	0.0	0.0	7.5
Perm LT Sat Flow (s_l), veh/h/ln	0	761	0	1305	0	482	0	1280
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1630	0	0	0	1630
Perm LT Eff Green (g_p), s	0.0	85.4	0.0	22.1	0.0	85.4	0.0	22.1
Perm LT Serve Time (g_u), s	0.0	85.4	0.0	14.6	0.0	85.4	0.0	12.2
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	9.6	0.0	0.0	0.0	13.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	9.6	0.0	0.0	0.0	7.5
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.13	0.00	1.00	0.00	0.07
Lane Grp Cap (c), veh/h	0	601	0	312	0	403	0	315
V/C Ratio (X)	0.00	0.13	0.00	0.46	0.00	0.09	0.00	0.35
Avail Cap (c_a), veh/h	0	601	0	391	0	403	0	395
Upstream Filter (I)	0.00	0.71	0.00	1.00	0.00	0.89	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	44.0	0.0	0.0	0.0	43.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	1.3	0.0	0.4	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
Control Delay (d), s/veh	0.0	0.3	0.0	45.2	0.0	0.4	0.0	43.6
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	3.8	0.0	0.0	0.0	2.9
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	3.9	0.0	0.0	0.0	2.9
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.16	0.00	0.01	0.00	0.14
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	564	0	0	0	341	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1791	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1275	0	0	0	1275	0	0
V/C Ratio (X)	0.00	0.44	0.00	0.00	0.00	0.27	0.00	0.00
Avail Cap (c_a), veh/h	0	1275	0	0	0	1275	0	0
Upstream Filter (I)	0.00	0.71	0.00	0.00	0.00	0.89	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	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
Control Delay (d), s/veh	0.0	0.8	0.0	0.0	0.0	0.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2021 AM Peak

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R			T+R				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	584	0	0	0	355	0	0
Grp Sat Flow (s), veh/h/ln	0	1852	0	0	0	1859	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.10	0.00	0.29	0.00	0.07	0.00	0.25
Lane Grp Cap (c), veh/h	0	1318	0	0	0	1323	0	0
V/C Ratio (X)	0.00	0.44	0.00	0.00	0.00	0.27	0.00	0.00
Avail Cap (c_a), veh/h	0	1318	0	0	0	1323	0	0
Upstream Filter (I)	0.00	0.71	0.00	0.00	0.00	0.89	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	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
Control Delay (d), s/veh	0.0	0.8	0.0	0.0	0.0	0.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

HCM 6th Signalized Intersection Capacity Analysis
5: Veterans Parkway & 13th Street 2021 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↑↑↔		↙	↑↑	↗
Traffic Volume (veh/h)	260	655	125	80	345	125	90	465	100	185	715	185
Future Volume (veh/h)	260	655	125	80	345	125	90	465	100	185	715	185
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		0.98
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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1856	1900	1885	1856	1870	1856	1856	1826	1856	1885
Adj Flow Rate, veh/h	280	762	134	121	379	154	100	528	164	257	831	226
Peak Hour Factor	0.93	0.86	0.93	0.66	0.91	0.81	0.90	0.88	0.61	0.72	0.86	0.82
Percent Heavy Veh, %	0	1	3	0	1	3	2	3	3	5	3	1
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	385	839	363	206	598	263	277	1373	415	436	1463	653
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
Prop Arrive On Green	0.19	0.31	0.31	0.14	0.33	0.33	0.05	0.36	0.36	0.11	0.42	0.42
Unsig. Movement Delay												
Ln Grp Delay, s/veh	37.4	52.3	35.2	39.0	39.0	39.9	24.2	29.7	30.9	21.5	28.5	25.4
Ln Grp LOS	D	D	D	D	D	D	C	C	C	C	C	C
Approach Vol, veh/h		1176			654			792			1314	
Approach Delay, s/veh		46.8			39.2			29.4			26.6	
Approach LOS		D			D			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		20.2	49.3	15.4	35.1	13.2	56.3	23.5	27.0			
Change Period (Y+Rc), s		7.0	6.5	7.0	7.0	7.0	6.5	6.5	7.0			
Max Green (Gmax), s		21.0	32.5	10.0	29.0	21.0	32.5	17.5	22.0			
Max Allow Headway (MAH), s		3.8	7.3	3.8	6.1	3.8	7.0	3.8	5.9			
Max Q Clear (g_c+I1), s		12.8	14.7	8.5	26.5	6.2	23.6	16.9	12.7			
Green Ext Time (g_e), s		0.5	7.3	0.0	1.6	0.2	6.1	0.1	2.7			
Prob of Phs Call (p_c)		1.00	1.00	0.98	1.00	0.96	1.00	1.00	1.00			
Prob of Max Out (p_x)		0.05	0.38	1.00	1.00	0.00	0.91	1.00	0.50			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1739		1810		1781		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3855		3582		3526		3582			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1164		1551		1573		1572			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2021 AM Peak

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	257	0	121	0	100	0	280	0
Grp Sat Flow (s), veh/h/ln	1739	0	1810	0	1781	0	1810	0
Q Serve Time (g_s), s	10.8	0.0	6.5	0.0	4.2	0.0	14.9	0.0
Cycle Q Clear Time (g_c), s	10.8	0.0	6.5	0.0	4.2	0.0	14.9	0.0
Perm LT Sat Flow (s_l), veh/h/ln	733	0	631	0	534	0	885	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	44.8	0.0	20.0	0.0	42.8	0.0	22.0	0.0
Perm LT Serve Time (g_u), s	30.1	0.0	3.6	0.0	28.2	0.0	9.3	0.0
Perm LT Q Serve Time (g_ps), s	7.9	0.0	3.5	0.0	3.4	0.0	5.4	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	436	0	206	0	277	0	385	0
V/C Ratio (X)	0.59	0.00	0.59	0.00	0.36	0.00	0.73	0.00
Avail Cap (c_a), veh/h	548	0	230	0	497	0	393	0
Upstream Filter (I)	1.00	0.00	0.99	0.00	1.00	0.00	0.89	0.00
Uniform Delay (d1), s/veh	20.2	0.0	35.9	0.0	23.4	0.0	31.5	0.0
Incr Delay (d2), s/veh	1.3	0.0	3.1	0.0	0.8	0.0	5.9	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	21.5	0.0	39.0	0.0	24.2	0.0	37.4	0.0
1st-Term Q (Q1), veh/ln	4.3	0.0	2.7	0.0	1.8	0.0	6.1	0.0
2nd-Term Q (Q2), veh/ln	0.2	0.0	0.2	0.0	0.1	0.0	0.6	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	4.5	0.0	2.9	0.0	1.8	0.0	6.8	0.0
%ile Storage Ratio (RQ%)	0.21	0.00	0.68	0.00	0.32	0.00	1.25	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	2	0	2	0	2
Grp Vol (v), veh/h	0	461	0	762	0	831	0	379
Grp Sat Flow (s), veh/h/ln	0	1689	0	1791	0	1763	0	1791
Q Serve Time (g_s), s	0.0	12.2	0.0	24.5	0.0	21.6	0.0	10.7
Cycle Q Clear Time (g_c), s	0.0	12.2	0.0	24.5	0.0	21.6	0.0	10.7
Lane Grp Cap (c), veh/h	0	1203	0	839	0	1463	0	598
V/C Ratio (X)	0.00	0.38	0.00	0.91	0.00	0.57	0.00	0.63
Avail Cap (c_a), veh/h	0	1203	0	866	0	1463	0	657
Upstream Filter (I)	0.00	1.00	0.00	0.89	0.00	1.00	0.00	0.99
Uniform Delay (d1), s/veh	0.0	28.8	0.0	40.1	0.0	26.9	0.0	36.9
Incr Delay (d2), s/veh	0.0	0.9	0.0	12.2	0.0	1.6	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
Control Delay (d), s/veh	0.0	29.7	0.0	52.3	0.0	28.5	0.0	39.0
1st-Term Q (Q1), veh/ln	0.0	5.0	0.0	10.2	0.0	9.0	0.0	4.1
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	1.4	0.0	0.3	0.0	0.2

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.1	0.0	11.6	0.0	9.4	0.0	4.3
%ile Storage Ratio (RQ%)	0.00	0.22	0.00	0.86	0.00	0.44	0.00	0.33
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	231	0	134	0	226	0	154
Grp Sat Flow (s), veh/h/ln	0	1641	0	1551	0	1573	0	1572
Q Serve Time (g_s), s	0.0	12.7	0.0	8.1	0.0	11.8	0.0	9.7
Cycle Q Clear Time (g_c), s	0.0	12.7	0.0	8.1	0.0	11.8	0.0	9.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.71	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	585	0	363	0	653	0	263
V/C Ratio (X)	0.00	0.40	0.00	0.37	0.00	0.35	0.00	0.59
Avail Cap (c_a), veh/h	0	585	0	375	0	653	0	288
Upstream Filter (I)	0.00	1.00	0.00	0.89	0.00	1.00	0.00	0.99
Uniform Delay (d1), s/veh	0.0	28.9	0.0	34.4	0.0	24.0	0.0	36.5
Incr Delay (d2), s/veh	0.0	2.0	0.0	0.8	0.0	1.5	0.0	3.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.9	0.0	35.2	0.0	25.4	0.0	39.9
1st-Term Q (Q1), veh/ln	0.0	5.0	0.0	3.0	0.0	4.4	0.0	3.3
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.1	0.0	0.3	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.3	0.0	3.0	0.0	4.6	0.0	3.6
%ile Storage Ratio (RQ%)	0.00	0.23	0.00	0.46	0.00	0.22	0.00	0.28
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Capacity Analysis
6: 5th Avenue & 13th Street 2021 AM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↘		↖	↗↘		↖	↗		↖	↗	↘
Traffic Volume (veh/h)	90	755	55	65	495	80	10	30	20	65	60	60
Future Volume (veh/h)	90	755	55	65	495	80	10	30	20	65	60	60
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1856	1856	1870	1870	1870	1900	1900	1900	1870	1870	1870
Adj Flow Rate, veh/h	106	910	81	103	510	119	20	34	47	83	63	65
Peak Hour Factor	0.85	0.83	0.68	0.63	0.97	0.67	0.50	0.88	0.43	0.78	0.95	0.92
Percent Heavy Veh, %	0	3	3	2	2	2	0	0	0	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	629	3125	277	507	2748	626	190	94	130	176	247	206
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
Prop Arrive On Green	0.08	1.00	1.00	0.04	0.66	0.66	0.13	0.13	0.13	0.13	0.13	0.13
Unsig. Movement Delay												
Ln Grp Delay, s/veh	5.7	0.2	0.3	5.9	8.0	8.3	49.4	0.0	48.5	55.2	47.3	48.1
Ln Grp LOS	A	A	A	A	A	A	D	A	D	E	D	D
Approach Vol, veh/h		1097			732			101			211	
Approach Delay, s/veh		0.7			7.8			48.6			50.6	
Approach LOS		A			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		11.8	85.8		22.3	11.9	85.8		22.3			
Change Period (Y+Rc), s		7.0	6.5		6.5	7.0	6.5		6.5			
Max Green (Gmax), s		13.0	55.0		32.0	13.0	55.0		32.0			
Max Allow Headway (MAH), s		3.8	7.3		5.2	3.8	7.3		4.4			
Max Q Clear (g_c+I1), s		4.2	2.0		7.3	4.3	7.9		14.6			
Green Ext Time (g_e), s		0.1	17.7		0.5	0.1	9.5		0.7			
Prob of Phs Call (p_c)		0.97	1.00		1.00	0.97	1.00		1.00			
Prob of Max Out (p_x)		0.01	0.09		0.00	0.01	0.01		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1781			1280	1810			1315			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			4727		714		4157		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			419		987		946		1560			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	103	0	0	20	106	0	0	83
Grp Sat Flow (s), veh/h/ln	1781	0	0	1280	1810	0	0	1315
Q Serve Time (g_s), s	2.2	0.0	0.0	1.7	2.3	0.0	0.0	7.4
Cycle Q Clear Time (g_c), s	2.2	0.0	0.0	5.3	2.3	0.0	0.0	12.6
Perm LT Sat Flow (s_l), veh/h/ln	568	0	0	1280	809	0	0	1315
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	79.3	0.0	0.0	15.8	79.3	0.0	0.0	15.8
Perm LT Serve Time (g_u), s	79.3	0.0	0.0	12.2	73.5	0.0	0.0	10.6
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.7	0.8	0.0	0.0	7.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	507	0	0	190	629	0	0	176
V/C Ratio (X)	0.20	0.00	0.00	0.11	0.17	0.00	0.00	0.47
Avail Cap (c_a), veh/h	628	0	0	363	752	0	0	354
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.46	0.00	0.00	1.00
Uniform Delay (d1), s/veh	5.7	0.0	0.0	49.2	5.6	0.0	0.0	53.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.1	0.0	0.0	1.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.9	0.0	0.0	49.4	5.7	0.0	0.0	55.2
1st-Term Q (Q1), veh/ln	0.8	0.0	0.0	0.5	0.8	0.0	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.8	0.0	0.0	0.6	0.8	0.0	0.0	2.5
%ile Storage Ratio (RQ%)	0.42	0.00	0.00	0.02	0.18	0.00	0.00	0.11
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	2	0	0	0	2	0	1
Grp Vol (v), veh/h	0	649	0	0	0	415	0	63
Grp Sat Flow (s), veh/h/ln	0	1689	0	0	0	1702	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	5.7	0.0	3.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	5.7	0.0	3.6
Lane Grp Cap (c), veh/h	0	2233	0	0	0	2250	0	247
V/C Ratio (X)	0.00	0.29	0.00	0.00	0.00	0.18	0.00	0.26
Avail Cap (c_a), veh/h	0	2233	0	0	0	2250	0	499
Upstream Filter (I)	0.00	0.46	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	7.9	0.0	46.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.2	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
Control Delay (d), s/veh	0.0	0.2	0.0	0.0	0.0	8.0	0.0	47.3
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	2.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	2.0	0.0	1.7
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	342	0	81	0	214	0	65
Grp Sat Flow (s), veh/h/ln	0	1769	0	1701	0	1699	0	1560
Q Serve Time (g_s), s	0.0	0.0	0.0	5.2	0.0	5.9	0.0	4.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	5.2	0.0	5.9	0.0	4.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.24	0.00	0.58	0.00	0.56	0.00	1.00
Lane Grp Cap (c), veh/h	0	1170	0	224	0	1123	0	206
V/C Ratio (X)	0.00	0.29	0.00	0.36	0.00	0.19	0.00	0.32
Avail Cap (c_a), veh/h	0	1170	0	454	0	1123	0	416
Upstream Filter (I)	0.00	0.46	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	47.5	0.0	7.9	0.0	47.2
Incr Delay (d2), s/veh	0.0	0.3	0.0	1.0	0.0	0.4	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
Control Delay (d), s/veh	0.0	0.3	0.0	48.5	0.0	8.3	0.0	48.1
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.2	0.0	2.1	0.0	1.8
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	2.3	0.0	2.2	0.0	1.8
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.10	0.00	0.05	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Capacity Analysis

1: Broadway & 13th Street 2021 PM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	↶
Traffic Volume (veh/h)	70	825	65	125	1305	25	90	35	80	60	45	180
Future Volume (veh/h)	70	825	65	125	1305	25	90	35	80	60	45	180
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.99
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	907	75	147	1500	45	123	60	116	120	62	214
Peak Hour Factor	0.74	0.91	0.87	0.85	0.87	0.56	0.73	0.58	0.69	0.50	0.73	0.84
Percent Heavy Veh, %	0	0	0	1	0	0	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	309	1898	157	376	2067	62	51	116	224	160	64	325
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
Prop Arrive On Green	0.04	0.56	0.56	0.10	1.00	1.00	0.23	0.23	0.23	0.23	0.23	0.23
Unsig. Movement Delay												
Ln Grp Delay, s/veh	12.4	19.9	19.9	13.5	3.4	3.4	751.5	0.0	48.3	80.7	0.0	53.5
Ln Grp LOS	B	B	B	B	A	A	F	A	D	F	A	D
Approach Vol, veh/h		1077			1692			299			396	
Approach Delay, s/veh		19.2			4.3			337.6			66.0	
Approach LOS		B			A			F			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		7.0			
Phs Duration (G+Y+Rc), s		14.2	85.8		40.0	12.1	87.9		40.0			
Change Period (Y+Rc), s		7.0	7.0		7.5	7.0	7.0		7.5			
Max Green (Gmax), s		16.0	70.0		32.5	16.0	70.0		32.5			
Max Allow Headway (MAH), s		3.8	7.3		5.1	3.8	7.2		4.7			
Max Q Clear (g_c+I1), s		7.0	24.5		34.5	5.1	2.0		34.5			
Green Ext Time (g_e), s		0.2	16.8		0.0	0.1	40.7		0.0			
Prob of Phs Call (p_c)		1.00	1.00		1.00	0.98	1.00		1.00			
Prob of Max Out (p_x)		0.01	0.16		1.00	0.00	0.44		1.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5					3	
Mvmt Sat Flow, veh/h		1795			1121	1810					504	
Through Movement Data												
Assigned Mvmt			2		4		6			8		
Mvmt Sat Flow, veh/h			3373		499		3577			276		
Right-Turn Movement Data												
Assigned Mvmt			12		14		16			18		
Mvmt Sat Flow, veh/h			279		966		107			1400		
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)			L+T				

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	147	0	0	123	95	0	0	182
Grp Sat Flow (s), veh/h/ln	1795	0	0	1121	1810	0	0	780
Q Serve Time (g_s), s	5.0	0.0	0.0	0.0	3.1	0.0	0.0	17.8
Cycle Q Clear Time (g_c), s	5.0	0.0	0.0	32.5	3.1	0.0	0.0	32.5
Perm LT Sat Flow (s_l), veh/h/ln	577	0	0	1121	340	0	0	1224
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	78.8	0.0	0.0	32.5	78.8	0.0	0.0	32.5
Perm LT Serve Time (g_u), s	56.3	0.0	0.0	0.0	78.8	0.0	0.0	17.8
Perm LT Q Serve Time (g_ps), s	7.1	0.0	0.0	0.0	0.0	0.0	0.0	17.8
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.66
Lane Grp Cap (c), veh/h	376	0	0	51	309	0	0	224
V/C Ratio (X)	0.39	0.00	0.00	2.39	0.31	0.00	0.00	0.81
Avail Cap (c_a), veh/h	489	0	0	51	450	0	0	224
Upstream Filter (I)	0.78	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	13.0	0.0	0.0	70.0	11.9	0.0	0.0	60.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	681.5	0.6	0.0	0.0	20.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	13.5	0.0	0.0	751.5	12.4	0.0	0.0	80.7
1st-Term Q (Q1), veh/ln	1.8	0.0	0.0	1.9	1.3	0.0	0.0	6.5
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	9.7	0.0	0.0	0.0	1.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	1.9	0.0	0.0	11.6	1.3	0.0	0.0	7.7
%ile Storage Ratio (RQ%)	0.94	0.00	0.00	0.46	0.23	0.00	0.00	0.38
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	17.9	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	485	0	0	0	755	0	0
Grp Sat Flow (s), veh/h/ln	0	1805	0	0	0	1805	0	0
Q Serve Time (g_s), s	0.0	22.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	22.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1016	0	0	0	1043	0	0
V/C Ratio (X)	0.00	0.48	0.00	0.00	0.00	0.72	0.00	0.00
Avail Cap (c_a), veh/h	0	1016	0	0	0	1043	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.78	0.00	0.00
Uniform Delay (d1), s/veh	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.0	0.0	0.0	3.4	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
Control Delay (d), s/veh	0.0	19.9	0.0	0.0	0.0	3.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 1: Broadway & 13th Street 2021 PM Peak

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.8	0.0	0.0	0.0	1.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.21	0.00	0.00	0.00	0.07	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	497	0	176	0	790	0	214
Grp Sat Flow (s), veh/h/ln	0	1847	0	1465	0	1880	0	1400
Q Serve Time (g_s), s	0.0	22.5	0.0	14.7	0.0	0.0	0.0	19.4
Cycle Q Clear Time (g_c), s	0.0	22.5	0.0	14.7	0.0	0.0	0.0	19.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.66	0.00	0.06	0.00	1.00
Lane Grp Cap (c), veh/h	0	1039	0	340	0	1086	0	325
V/C Ratio (X)	0.00	0.48	0.00	0.52	0.00	0.73	0.00	0.66
Avail Cap (c_a), veh/h	0	1039	0	340	0	1086	0	325
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.78	0.00	1.00
Uniform Delay (d1), s/veh	0.0	18.3	0.0	46.9	0.0	0.0	0.0	48.7
Incr Delay (d2), s/veh	0.0	1.6	0.0	1.4	0.0	3.4	0.0	4.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	19.9	0.0	48.3	0.0	3.4	0.0	53.5
1st-Term Q (Q1), veh/ln	0.0	9.6	0.0	5.4	0.0	0.0	0.0	6.8
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.1	0.0	1.0	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.1	0.0	5.5	0.0	1.0	0.0	7.2
%ile Storage Ratio (RQ%)	0.00	0.22	0.00	0.22	0.00	0.07	0.00	0.36
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Capacity Analysis

2: 1st Avenue & 13th Street 2021 PM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕	↗		↗	
Traffic Volume (veh/h)	15	865	20	35	1375	5	75	30	120	10	10	20
Future Volume (veh/h)	15	865	20	35	1375	5	75	30	120	10	10	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	951	36	42	1511	8	132	45	164	30	18	27
Peak Hour Factor	0.71	0.91	0.55	0.84	0.91	0.63	0.57	0.67	0.73	0.33	0.56	0.75
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	324	2386	90	496	2531	13	223	240	208	163	94	156
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
Prop Arrive On Green	0.04	1.00	1.00	0.06	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Unsig. Movement Delay												
Ln Grp Delay, s/veh	6.4	0.9	0.8	6.0	1.5	1.4	64.6	53.3	70.9	55.0	0.0	53.2
Ln Grp LOS	A	A	A	A	A	A	E	D	E	D	A	D
Approach Vol, veh/h		1008			1561			341			75	
Approach Delay, s/veh		1.0			1.6			66.2			54.2	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		7.0	1.1	4.0		8.0			
Phs Duration (G+Y+Rc), s		10.5	102.5		27.0	9.3	103.7		27.0			
Change Period (Y+Rc), s		6.5	7.5		6.5	6.5	7.5		6.5			
Max Green (Gmax), s		15.5	72.5		31.5	15.5	72.5		31.5			
Max Allow Headway (MAH), s		4.8	7.2		6.7	4.8	7.2		7.6			
Max Q Clear (g_c+I1), s		3.0	2.0		18.0	2.5	2.0		8.2			
Green Ext Time (g_e), s		0.1	19.0		2.4	0.0	40.3		0.6			
Prob of Phs Call (p_c)		0.80	1.00		1.00	0.56	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.05		0.21	0.00	0.40		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			1173	1810			808			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3517		1643		3682		640			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			133		1425		19		1066			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			L+TL (Pr/Pm)			L+T				

HCM 6th Signalized Intersection Capacity Analysis 2: 1st Avenue & 13th Street 2021 PM Peak

07/22/2021

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	42	0	0	132	21	0	0	41
Grp Sat Flow (s), veh/h/ln	1810	0	0	1173	1810	0	0	1176
Q Serve Time (g_s), s	1.0	0.0	0.0	12.9	0.5	0.0	0.0	2.8
Cycle Q Clear Time (g_c), s	1.0	0.0	0.0	16.0	0.5	0.0	0.0	6.2
Perm LT Sat Flow (s_l), veh/h/ln	579	0	0	1383	349	0	0	1191
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	95.0	0.0	0.0	20.5	95.0	0.0	0.0	20.5
Perm LT Serve Time (g_u), s	95.0	0.0	0.0	17.4	95.0	0.0	0.0	17.1
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	2.8
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.73
Lane Grp Cap (c), veh/h	496	0	0	223	324	0	0	216
V/C Ratio (X)	0.08	0.00	0.00	0.59	0.06	0.00	0.00	0.19
Avail Cap (c_a), veh/h	645	0	0	332	489	0	0	321
Upstream Filter (I)	0.70	0.00	0.00	1.00	0.88	0.00	0.00	1.00
Uniform Delay (d1), s/veh	6.0	0.0	0.0	59.4	6.3	0.0	0.0	54.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	5.3	0.1	0.0	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
Control Delay (d), s/veh	6.0	0.0	0.0	64.6	6.4	0.0	0.0	55.0
1st-Term Q (Q1), veh/ln	0.4	0.0	0.0	4.6	0.2	0.0	0.0	1.3
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.4	0.0	0.0	4.9	0.2	0.0	0.0	1.4
%ile Storage Ratio (RQ%)	0.10	0.00	0.00	0.21	0.12	0.00	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	484	0	45	0	741	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	1643	0	1805	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1215	0	240	0	1241	0	0
V/C Ratio (X)	0.00	0.40	0.00	0.19	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	1215	0	370	0	1241	0	0
Upstream Filter (I)	0.00	0.88	0.00	1.00	0.00	0.70	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	52.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.8	0.0	1.5	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
Control Delay (d), s/veh	0.0	0.9	0.0	53.3	0.0	1.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.1	0.0	0.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis 2: 1st Avenue & 13th Street 2021 PM Peak

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	1.5	0.0	0.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.06	0.00	0.04	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	503	0	164	0	778	0	34
Grp Sat Flow (s), veh/h/ln	0	1859	0	1425	0	1896	0	1338
Q Serve Time (g_s), s	0.0	0.0	0.0	15.5	0.0	0.0	0.0	3.1
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	15.5	0.0	0.0	0.0	3.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.07	0.00	1.00	0.00	0.01	0.00	0.80
Lane Grp Cap (c), veh/h	0	1262	0	208	0	1304	0	196
V/C Ratio (X)	0.00	0.40	0.00	0.79	0.00	0.60	0.00	0.17
Avail Cap (c_a), veh/h	0	1262	0	321	0	1304	0	301
Upstream Filter (I)	0.00	0.88	0.00	1.00	0.00	0.70	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	57.7	0.0	0.0	0.0	52.3
Incr Delay (d2), s/veh	0.0	0.8	0.0	13.3	0.0	1.4	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
Control Delay (d), s/veh	0.0	0.8	0.0	70.9	0.0	1.4	0.0	53.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	5.6	0.0	0.0	0.0	1.1
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.8	0.0	0.5	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	6.4	0.0	0.5	0.0	1.1
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.28	0.00	0.04	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	765	30	15	1130	45	15	235	10	45	125	270
Future Volume (veh/h)	200	765	30	15	1130	45	15	235	10	45	125	270
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1900	1885	1885	1870	1870	1900
Adj Flow Rate, veh/h	215	814	40	18	1299	54	23	362	20	68	156	297
Peak Hour Factor	0.93	0.94	0.75	0.85	0.87	0.83	0.65	0.65	0.50	0.66	0.80	0.91
Percent Heavy Veh, %	0	1	1	0	0	0	0	1	1	2	2	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	402	2069	102	441	1920	80	228	449	25	113	474	408
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
Prop Arrive On Green	0.14	1.00	1.00	0.04	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25
Unsig. Movement Delay												
Ln Grp Delay, s/veh	11.2	1.0	1.0	13.4	3.3	3.2	47.8	0.0	58.9	76.2	43.1	54.8
Ln Grp LOS	B	A	A	B	A	A	D	A	E	E	D	D
Approach Vol, veh/h		1069			1371			405			521	
Approach Delay, s/veh		3.0			3.4			58.3			54.1	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		8.5	89.5		42.0	15.9	82.1		42.0			
Change Period (Y+Rc), s		6.0	6.0		6.5	6.0	6.0		6.5			
Max Green (Gmax), s		19.0	67.0		35.5	19.0	67.0		35.5			
Max Allow Headway (MAH), s		3.8	7.3		5.2	3.8	7.2		5.5			
Max Q Clear (g_c+I1), s		2.6	2.0		28.9	9.5	2.0		37.5			
Green Ext Time (g_e), s		0.0	14.8		1.3	0.4	31.9		0.0			
Prob of Phs Call (p_c)		0.50	1.00		1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.03		0.66	0.01	0.29		1.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			953	1810			1001			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3470		1770		3532		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			171		98		147		1610			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	18	0	0	23	215	0	0	68
Grp Sat Flow (s), veh/h/ln	1810	0	0	953	1810	0	0	1001
Q Serve Time (g_s), s	0.6	0.0	0.0	2.8	7.5	0.0	0.0	8.6
Cycle Q Clear Time (g_c), s	0.6	0.0	0.0	12.3	7.5	0.0	0.0	35.5
Perm LT Sat Flow (s_l), veh/h/ln	656	0	0	953	409	0	0	1001
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	76.1	0.0	0.0	35.5	78.1	0.0	0.0	35.5
Perm LT Serve Time (g_u), s	76.1	0.0	0.0	26.0	76.1	0.0	0.0	8.6
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	2.8	1.9	0.0	0.0	8.6
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	441	0	0	228	402	0	0	113
V/C Ratio (X)	0.04	0.00	0.00	0.10	0.54	0.00	0.00	0.60
Avail Cap (c_a), veh/h	654	0	0	228	519	0	0	113
Upstream Filter (I)	0.88	0.00	0.00	1.00	0.91	0.00	0.00	1.00
Uniform Delay (d1), s/veh	13.3	0.0	0.0	47.6	10.2	0.0	0.0	66.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	1.0	0.0	0.0	10.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	13.4	0.0	0.0	47.8	11.2	0.0	0.0	76.2
1st-Term Q (Q1), veh/ln	0.3	0.0	0.0	0.7	2.6	0.0	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.3	0.0	0.0	0.7	2.7	0.0	0.0	2.8
%ile Storage Ratio (RQ%)	0.07	0.00	0.00	0.23	0.84	0.00	0.00	0.94
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	420	0	0	0	663	0	156
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane Grp Cap (c), veh/h	0	1068	0	0	0	981	0	474
V/C Ratio (X)	0.00	0.39	0.00	0.00	0.00	0.68	0.00	0.33
Avail Cap (c_a), veh/h	0	1068	0	0	0	981	0	474
Upstream Filter (I)	0.00	0.91	0.00	0.00	0.00	0.88	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.5
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.0	0.0	3.3	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
Control Delay (d), s/veh	0.0	1.0	0.0	0.0	0.0	3.3	0.0	43.1
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.9	0.0	0.1

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.0	0.0	0.9	0.0	4.5
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.00	0.00	0.06	0.00	0.21
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	434	0	382	0	690	0	297
Grp Sat Flow (s), veh/h/ln	0	1850	0	1868	0	1873	0	1610
Q Serve Time (g_s), s	0.0	0.0	0.0	26.9	0.0	0.0	0.0	23.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	26.9	0.0	0.0	0.0	23.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.09	0.00	0.05	0.00	0.08	0.00	1.00
Lane Grp Cap (c), veh/h	0	1103	0	474	0	1018	0	408
V/C Ratio (X)	0.00	0.39	0.00	0.81	0.00	0.68	0.00	0.73
Avail Cap (c_a), veh/h	0	1103	0	474	0	1018	0	408
Upstream Filter (I)	0.00	0.91	0.00	1.00	0.00	0.88	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	49.0	0.0	0.0	0.0	47.8
Incr Delay (d2), s/veh	0.0	1.0	0.0	9.9	0.0	3.2	0.0	6.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.0	0.0	58.9	0.0	3.2	0.0	54.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	12.5	0.0	0.0	0.0	9.5
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	1.3	0.0	0.9	0.0	0.8
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	13.8	0.0	0.9	0.0	10.3
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.55	0.00	0.06	0.00	0.48
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis
4: 3rd Avenue & 13th Street 2021 PM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	780	15	15	1130	15	30	50	35	10	15	40
Future Volume (veh/h)	30	780	15	15	1130	15	30	50	35	10	15	40
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1870	1870	1870	1900	1900	1900
Adj Flow Rate, veh/h	56	821	21	30	1228	22	45	74	45	22	25	62
Peak Hour Factor	0.54	0.95	0.70	0.50	0.92	0.67	0.66	0.68	0.77	0.45	0.61	0.65
Percent Heavy Veh, %	0	1	1	0	0	0	2	2	2	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	394	2706	69	555	2753	49	81	114	61	60	66	125
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
Prop Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.7	0.5	0.5	0.1	0.8	0.7	59.6	0.0	0.0	55.5	0.0	0.0
Ln Grp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		898			1280			164			109	
Approach Delay, s/veh		0.5			0.7			59.6			55.5	
Approach LOS		A			A			E			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			6.0		8.0		6.0		8.0			
Phs Duration (G+Y+Rc), s			112.2		27.8		112.2		27.8			
Change Period (Y+Rc), s			6.0		6.5		6.0		6.5			
Max Green (Gmax), s			96.0		31.5		96.0		31.5			
Max Allow Headway (MAH), s			7.5		5.9		7.3		5.5			
Max Q Clear (g_c+I1), s			2.0		16.6		2.0		11.4			
Green Ext Time (g_e), s			17.6		0.9		32.4		0.5			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.01		0.01		0.11		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			451		317		664		189			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3566		750		3628		434			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			91		404		65		822			
Left Lane Group Data												
Assigned Mvmt	0	5	0	7	0	1	0	3				
Lane Assignment		L		L+T+R		L		L+T+R				

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	56	0	164	0	30	0	109
Grp Sat Flow (s), veh/h/ln	0	451	0	1471	0	664	0	1446
Q Serve Time (g_s), s	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	14.6	0.0	0.0	0.0	9.4
Perm LT Sat Flow (s_l), veh/h/ln	0	451	0	1329	0	664	0	1292
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1508	0	0	0	1439
Perm LT Eff Green (g_p), s	0.0	106.2	0.0	21.3	0.0	106.2	0.0	21.3
Perm LT Serve Time (g_u), s	0.0	106.2	0.0	11.9	0.0	106.2	0.0	6.6
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	7.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	7.2
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.27	0.00	1.00	0.00	0.20
Lane Grp Cap (c), veh/h	0	394	0	256	0	555	0	251
V/C Ratio (X)	0.00	0.14	0.00	0.64	0.00	0.05	0.00	0.44
Avail Cap (c_a), veh/h	0	394	0	360	0	555	0	352
Upstream Filter (I)	0.00	0.91	0.00	1.00	0.00	0.73	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	56.4	0.0	0.0	0.0	54.3
Incr Delay (d2), s/veh	0.0	0.7	0.0	3.2	0.0	0.1	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
Control Delay (d), s/veh	0.0	0.7	0.0	59.6	0.0	0.1	0.0	55.5
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	5.5	0.0	0.0	0.0	3.5
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	5.8	0.0	0.0	0.0	3.6
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.24	0.00	0.01	0.00	0.16
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	412	0	0	0	611	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1359	0	0	0	1370	0	0
V/C Ratio (X)	0.00	0.30	0.00	0.00	0.00	0.45	0.00	0.00
Avail Cap (c_a), veh/h	0	1359	0	0	0	1370	0	0
Upstream Filter (I)	0.00	0.91	0.00	0.00	0.00	0.73	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.5	0.0	0.0	0.0	0.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R			T+R				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	430	0	0	0	639	0	0
Grp Sat Flow (s), veh/h/ln	0	1866	0	0	0	1888	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.05	0.00	0.27	0.00	0.03	0.00	0.57
Lane Grp Cap (c), veh/h	0	1416	0	0	0	1433	0	0
V/C Ratio (X)	0.00	0.30	0.00	0.00	0.00	0.45	0.00	0.00
Avail Cap (c_a), veh/h	0	1416	0	0	0	1433	0	0
Upstream Filter (I)	0.00	0.91	0.00	0.00	0.00	0.73	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.7	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
Control Delay (d), s/veh	0.0	0.5	0.0	0.0	0.0	0.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

HCM 6th Signalized Intersection Capacity Analysis
5: Veterans Parkway & 13th Street 2021 PM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↑↑↔		↙	↑↑	↗
Traffic Volume (veh/h)	225	530	85	70	625	170	150	635	110	165	480	375
Future Volume (veh/h)	225	530	85	70	625	170	150	635	110	165	480	375
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1870	1900	1900	1856	1900	1870	1870	1870	1826	1885
Adj Flow Rate, veh/h	259	582	97	84	658	205	181	765	131	199	480	417
Peak Hour Factor	0.87	0.91	0.88	0.83	0.95	0.83	0.83	0.83	0.84	0.83	1.00	0.90
Percent Heavy Veh, %	0	1	2	0	0	3	0	2	2	2	5	1
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	276	1006	439	273	825	359	379	1725	293	362	1385	637
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
Prop Arrive On Green	0.21	0.56	0.56	0.05	0.23	0.23	0.08	0.39	0.39	0.08	0.40	0.40
Unsig. Movement Delay												
Ln Grp Delay, s/veh	73.4	26.3	23.4	39.3	55.1	49.9	23.7	32.3	33.5	24.8	30.0	39.4
Ln Grp LOS	E	C	C	D	E	D	C	C	C	C	C	D
Approach Vol, veh/h		938			947			1077			1096	
Approach Delay, s/veh		39.0			52.5			31.2			32.6	
Approach LOS		D			D			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		18.5	61.5	13.7	46.3	17.6	62.4	21.0	39.0			
Change Period (Y+Rc), s		7.0	6.5	7.0	7.0	7.0	6.5	6.5	7.0			
Max Green (Gmax), s		18.0	41.5	9.0	37.0	21.0	38.5	14.5	39.0			
Max Allow Headway (MAH), s		3.8	7.3	3.8	6.1	3.8	6.7	3.8	6.0			
Max Q Clear (g_c+I1), s		11.2	20.1	6.9	16.8	10.3	31.7	16.5	26.1			
Green Ext Time (g_e), s		0.3	10.5	0.0	5.8	0.3	4.1	0.0	5.7			
Prob of Phs Call (p_c)		1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00			
Prob of Max Out (p_x)		0.10	0.42	1.00	0.13	0.00	0.99	1.00	0.46			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1781		1810		1810		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			4393		3582		3469		3610			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			746		1563		1596		1570			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2021 PM Peak

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	199	0	84	0	181	0	259	0
Grp Sat Flow (s), veh/h/ln	1781	0	1810	0	1810	0	1810	0
Q Serve Time (g_s), s	9.2	0.0	4.9	0.0	8.3	0.0	14.5	0.0
Cycle Q Clear Time (g_c), s	9.2	0.0	4.9	0.0	8.3	0.0	14.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	621	0	773	0	630	0	651	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	55.0	0.0	32.0	0.0	55.0	0.0	34.0	0.0
Perm LT Serve Time (g_u), s	36.8	0.0	24.5	0.0	42.4	0.0	7.9	0.0
Perm LT Q Serve Time (g_ps), s	8.5	0.0	0.9	0.0	5.1	0.0	7.9	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	362	0	273	0	379	0	276	0
V/C Ratio (X)	0.55	0.00	0.31	0.00	0.48	0.00	0.94	0.00
Avail Cap (c_a), veh/h	444	0	303	0	514	0	276	0
Upstream Filter (I)	1.00	0.00	0.97	0.00	1.00	0.00	0.96	0.00
Uniform Delay (d1), s/veh	23.5	0.0	38.7	0.0	22.8	0.0	36.3	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.6	0.0	0.9	0.0	37.2	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	24.8	0.0	39.3	0.0	23.7	0.0	73.4	0.0
1st-Term Q (Q1), veh/ln	3.9	0.0	2.2	0.0	3.6	0.0	6.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.1	0.0	2.8	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	4.1	0.0	2.3	0.0	3.7	0.0	8.9	0.0
%ile Storage Ratio (RQ%)	0.19	0.00	0.54	0.00	0.63	0.00	1.65	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	2	0	2	0	2
Grp Vol (v), veh/h	0	591	0	582	0	480	0	658
Grp Sat Flow (s), veh/h/ln	0	1702	0	1791	0	1735	0	1805
Q Serve Time (g_s), s	0.0	17.9	0.0	14.8	0.0	13.5	0.0	24.1
Cycle Q Clear Time (g_c), s	0.0	17.9	0.0	14.8	0.0	13.5	0.0	24.1
Lane Grp Cap (c), veh/h	0	1336	0	1006	0	1385	0	825
V/C Ratio (X)	0.00	0.44	0.00	0.58	0.00	0.35	0.00	0.80
Avail Cap (c_a), veh/h	0	1336	0	1006	0	1385	0	1006
Upstream Filter (I)	0.00	1.00	0.00	0.96	0.00	1.00	0.00	0.97
Uniform Delay (d1), s/veh	0.0	31.3	0.0	25.3	0.0	29.3	0.0	50.9
Incr Delay (d2), s/veh	0.0	1.1	0.0	1.0	0.0	0.7	0.0	4.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.3	0.0	26.3	0.0	30.0	0.0	55.1
1st-Term Q (Q1), veh/ln	0.0	7.4	0.0	4.9	0.0	5.7	0.0	10.9
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.5

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2021 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.6	0.0	5.1	0.0	5.8	0.0	11.4
%ile Storage Ratio (RQ%)	0.00	0.32	0.00	0.38	0.00	0.28	0.00	0.88
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	305	0	97	0	417	0	205
Grp Sat Flow (s), veh/h/ln	0	1735	0	1563	0	1596	0	1570
Q Serve Time (g_s), s	0.0	18.1	0.0	4.3	0.0	29.7	0.0	16.2
Cycle Q Clear Time (g_c), s	0.0	18.1	0.0	4.3	0.0	29.7	0.0	16.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.43	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	681	0	439	0	637	0	359
V/C Ratio (X)	0.00	0.45	0.00	0.22	0.00	0.65	0.00	0.57
Avail Cap (c_a), veh/h	0	681	0	439	0	637	0	437
Upstream Filter (I)	0.00	1.00	0.00	0.96	0.00	1.00	0.00	0.97
Uniform Delay (d1), s/veh	0.0	31.3	0.0	23.0	0.0	34.2	0.0	47.9
Incr Delay (d2), s/veh	0.0	2.1	0.0	0.3	0.0	5.2	0.0	2.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	33.5	0.0	23.4	0.0	39.4	0.0	49.9
1st-Term Q (Q1), veh/ln	0.0	7.7	0.0	1.5	0.0	11.6	0.0	6.4
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.9	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.1	0.0	1.6	0.0	12.5	0.0	6.6
%ile Storage Ratio (RQ%)	0.00	0.34	0.00	0.24	0.00	0.58	0.00	0.52
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Capacity Analysis
6: 5th Avenue & 13th Street 2021 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↘↙		↖	↗↘↙		↖	↗		↖	↗	↘
Traffic Volume (veh/h)	50	715	30	40	755	105	10	55	35	80	60	95
Future Volume (veh/h)	50	715	30	40	755	105	10	55	35	80	60	95
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	58	786	37	53	830	124	15	70	51	94	77	112
Peak Hour Factor	0.86	0.91	0.81	0.75	0.91	0.85	0.67	0.79	0.69	0.85	0.78	0.85
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	1	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	460	3338	157	555	2997	445	205	165	120	179	309	256
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
Prop Arrive On Green	0.06	1.00	1.00	0.03	0.66	0.66	0.16	0.16	0.16	0.16	0.16	0.16
Unsig. Movement Delay												
Ln Grp Delay, s/veh	7.1	0.2	0.4	6.8	10.1	10.4	54.1	0.0	53.7	63.5	51.6	54.0
Ln Grp LOS	A	A	A	A	B	B	D	A	D	E	D	D
Approach Vol, veh/h		881			1007			136			283	
Approach Delay, s/veh		0.7			10.0			53.8			56.5	
Approach LOS		A			A			D			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		11.4	99.4		29.3	11.5	99.3		29.3			
Change Period (Y+Rc), s		7.0	6.5		6.5	7.0	6.5		6.5			
Max Green (Gmax), s		13.0	73.5		33.5	15.0	71.5		33.5			
Max Allow Headway (MAH), s		3.8	7.3		5.3	3.8	7.3		4.4			
Max Q Clear (g_c+I1), s		3.3	2.0		10.7	3.4	12.7		20.7			
Green Ext Time (g_e), s		0.1	14.2		0.7	0.1	17.2		0.9			
Prob of Phs Call (p_c)		0.87	1.00		1.00	0.90	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.01		0.00	0.00	0.06		0.01			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			1209	1810			1276			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			5031		1013		4522		1900			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			236		738		672		1578			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2021 PM Peak

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	53	0	0	15	58	0	0	94
Grp Sat Flow (s), veh/h/ln	1810	0	0	1209	1810	0	0	1276
Q Serve Time (g_s), s	1.3	0.0	0.0	1.5	1.4	0.0	0.0	10.0
Cycle Q Clear Time (g_c), s	1.3	0.0	0.0	6.5	1.4	0.0	0.0	18.7
Perm LT Sat Flow (s_l), veh/h/ln	675	0	0	1209	597	0	0	1276
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	92.8	0.0	0.0	22.8	92.8	0.0	0.0	22.8
Perm LT Serve Time (g_u), s	92.8	0.0	0.0	17.8	82.1	0.0	0.0	14.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.5	1.1	0.0	0.0	10.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	555	0	0	205	460	0	0	179
V/C Ratio (X)	0.10	0.00	0.00	0.07	0.13	0.00	0.00	0.52
Avail Cap (c_a), veh/h	667	0	0	298	596	0	0	277
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.81	0.00	0.00	1.00
Uniform Delay (d1), s/veh	6.8	0.0	0.0	54.0	7.0	0.0	0.0	61.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.1	0.0	0.0	2.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	6.8	0.0	0.0	54.1	7.1	0.0	0.0	63.5
1st-Term Q (Q1), veh/ln	0.5	0.0	0.0	0.5	0.5	0.0	0.0	3.3
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.5	0.0	0.0	0.5	0.5	0.0	0.0	3.4
%ile Storage Ratio (RQ%)	0.26	0.00	0.00	0.02	0.13	0.00	0.00	0.15
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	2	0	0	0	2	0	1
Grp Vol (v), veh/h	0	535	0	0	0	629	0	77
Grp Sat Flow (s), veh/h/ln	0	1716	0	0	0	1716	0	1900
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	10.6	0.0	5.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	10.6	0.0	5.0
Lane Grp Cap (c), veh/h	0	2276	0	0	0	2274	0	309
V/C Ratio (X)	0.00	0.24	0.00	0.00	0.00	0.28	0.00	0.25
Avail Cap (c_a), veh/h	0	2276	0	0	0	2274	0	455
Upstream Filter (I)	0.00	0.81	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	9.8	0.0	51.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.2	0.0	0.0	0.0	10.1	0.0	51.6
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	3.9	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2021 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	4.0	0.0	2.4
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.11
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	288	0	121	0	325	0	112
Grp Sat Flow (s), veh/h/ln	0	1836	0	1751	0	1763	0	1578
Q Serve Time (g_s), s	0.0	0.0	0.0	8.7	0.0	10.7	0.0	9.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	8.7	0.0	10.7	0.0	9.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.13	0.00	0.42	0.00	0.38	0.00	1.00
Lane Grp Cap (c), veh/h	0	1218	0	285	0	1168	0	256
V/C Ratio (X)	0.00	0.24	0.00	0.43	0.00	0.28	0.00	0.44
Avail Cap (c_a), veh/h	0	1218	0	419	0	1168	0	378
Upstream Filter (I)	0.00	0.81	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	52.7	0.0	9.8	0.0	52.8
Incr Delay (d2), s/veh	0.0	0.4	0.0	1.0	0.0	0.6	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
Control Delay (d), s/veh	0.0	0.4	0.0	53.7	0.0	10.4	0.0	54.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	3.9	0.0	4.1	0.0	3.6
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	3.9	0.0	4.3	0.0	3.7
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.17	0.00	0.10	0.00	0.16
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

1: Broadway & 13th Street 2044 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗			↖	↗
Traffic Volume (veh/h)	115	1555	75	90	635	5	10	5	15	10	15	40
Future Volume (veh/h)	115	1555	75	90	635	5	10	5	15	10	15	40
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.98	1.00		1.00	0.98		0.98	0.98		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1900	1900	1900	1633	1633	1900
Adj Flow Rate, veh/h	160	1829	96	107	722	13	20	10	38	40	22	83
Peak Hour Factor	0.72	0.85	0.78	0.84	0.88	0.38	0.50	0.50	0.40	0.25	0.69	0.48
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	18	18	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	618	2246	117	192	2307	42	147	39	148	134	61	180
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
Prop Arrive On Green	0.05	0.65	0.65	0.08	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Unsig. Movement Delay												
Ln Grp Delay, s/veh	6.5	21.5	22.3	24.1	0.7	0.6	53.4	0.0	47.6	50.0	0.0	50.0
Ln Grp LOS	A	C	C	C	A	A	D	A	D	D	A	D
Approach Vol, veh/h		2085			842			68			145	
Approach Delay, s/veh		20.7			3.6			49.3			50.0	
Approach LOS		C			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		7.0			
Phs Duration (G+Y+Rc), s		11.9	84.9		23.2	12.9	83.9		23.2			
Change Period (Y+Rc), s		7.0	7.0		7.5	7.0	7.0		7.5			
Max Green (Gmax), s		17.0	55.0		26.5	17.0	55.0		26.5			
Max Allow Headway (MAH), s		3.8	7.3		5.1	3.8	7.2		4.7			
Max Q Clear (g_c+I1), s		4.5	50.2		11.4	5.6	2.0		9.6			
Green Ext Time (g_e), s		0.2	4.6		0.2	0.3	11.5		0.5			
Prob of Phs Call (p_c)		0.97	1.00		1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.00	1.00		0.00	0.00	0.02		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			1290	1810			643			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3459		297		3599		468			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			180		1130		65		1377			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)			L+T				

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	107	0	0	20	160	0	0	62
Grp Sat Flow (s), veh/h/ln	1810	0	0	1290	1810	0	0	1111
Q Serve Time (g_s), s	2.5	0.0	0.0	1.8	3.6	0.0	0.0	4.0
Cycle Q Clear Time (g_c), s	2.5	0.0	0.0	9.4	3.6	0.0	0.0	7.6
Perm LT Sat Flow (s_l), veh/h/ln	235	0	0	1290	733	0	0	1353
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	76.9	0.0	0.0	15.7	76.9	0.0	0.0	15.7
Perm LT Serve Time (g_u), s	29.7	0.0	0.0	8.1	76.9	0.0	0.0	12.1
Perm LT Q Serve Time (g_ps), s	29.7	0.0	0.0	1.8	0.0	0.0	0.0	4.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.65
Lane Grp Cap (c), veh/h	192	0	0	147	618	0	0	195
V/C Ratio (X)	0.56	0.00	0.00	0.14	0.26	0.00	0.00	0.32
Avail Cap (c_a), veh/h	375	0	0	263	786	0	0	311
Upstream Filter (I)	0.94	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	21.7	0.0	0.0	53.0	6.3	0.0	0.0	49.1
Incr Delay (d2), s/veh	2.4	0.0	0.0	0.4	0.2	0.0	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
Control Delay (d), s/veh	24.1	0.0	0.0	53.4	6.5	0.0	0.0	50.0
1st-Term Q (Q1), veh/ln	1.9	0.0	0.0	0.6	1.3	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	2.0	0.0	0.0	0.6	1.3	0.0	0.0	1.8
%ile Storage Ratio (RQ%)	0.99	0.00	0.00	0.02	0.23	0.00	0.00	0.10
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	938	0	0	0	359	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1791	0	0
Q Serve Time (g_s), s	0.0	46.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	46.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1163	0	0	0	1148	0	0
V/C Ratio (X)	0.00	0.81	0.00	0.00	0.00	0.31	0.00	0.00
Avail Cap (c_a), veh/h	0	1163	0	0	0	1148	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.94	0.00	0.00
Uniform Delay (d1), s/veh	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.0	0.0	0.0	0.0	0.7	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
Control Delay (d), s/veh	0.0	21.5	0.0	0.0	0.0	0.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	17.3	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	2.0	0.0	0.0	0.0	0.2	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	19.3	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.42	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	987	0	48	0	376	0	83
Grp Sat Flow (s), veh/h/ln	0	1848	0	1428	0	1873	0	1377
Q Serve Time (g_s), s	0.0	48.2	0.0	3.6	0.0	0.0	0.0	6.7
Cycle Q Clear Time (g_c), s	0.0	48.2	0.0	3.6	0.0	0.0	0.0	6.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.10	0.00	0.79	0.00	0.03	0.00	1.00
Lane Grp Cap (c), veh/h	0	1200	0	187	0	1201	0	180
V/C Ratio (X)	0.00	0.82	0.00	0.26	0.00	0.31	0.00	0.46
Avail Cap (c_a), veh/h	0	1200	0	315	0	1201	0	304
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.94	0.00	1.00
Uniform Delay (d1), s/veh	0.0	15.8	0.0	46.9	0.0	0.0	0.0	48.2
Incr Delay (d2), s/veh	0.0	6.4	0.0	0.7	0.0	0.6	0.0	1.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	22.3	0.0	47.6	0.0	0.6	0.0	50.0
1st-Term Q (Q1), veh/ln	0.0	18.6	0.0	1.3	0.0	0.0	0.0	2.3
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	0.0	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	20.8	0.0	1.3	0.0	0.2	0.0	2.4
%ile Storage Ratio (RQ%)	0.00	0.45	0.00	0.05	0.00	0.02	0.00	0.12
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕	↗		↗	
Traffic Volume (veh/h)	30	1465	70	120	735	40	35	25	75	10	45	20
Future Volume (veh/h)	30	1465	70	120	735	40	35	25	75	10	45	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1811	1811	1870	1900	1900	1900
Adj Flow Rate, veh/h	43	1765	109	222	808	68	54	47	112	30	64	30
Peak Hour Factor	0.69	0.83	0.64	0.54	0.91	0.59	0.65	0.53	0.67	0.33	0.70	0.67
Percent Heavy Veh, %	0	1	1	0	1	1	6	6	2	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	539	2247	138	339	2301	194	152	171	153	97	181	84
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
Prop Arrive On Green	0.06	1.00	1.00	0.13	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Unsig. Movement Delay												
Ln Grp Delay, s/veh	5.9	2.2	2.3	7.7	0.7	0.7	56.8	50.9	65.0	51.7	0.0	52.6
Ln Grp LOS	A	A	A	A	A	A	E	D	E	D	A	D
Approach Vol, veh/h		1917			1098			213			124	
Approach Delay, s/veh		2.3			2.1			59.8			52.1	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		7.0	1.1	4.0		8.0			
Phs Duration (G+Y+Rc), s		14.2	86.1		19.6	10.3	90.1		19.6			
Change Period (Y+Rc), s		6.5	7.5		6.5	6.5	7.5		6.5			
Max Green (Gmax), s		16.5	49.5		33.5	16.5	49.5		33.5			
Max Allow Headway (MAH), s		4.8	7.3		6.7	4.8	7.3		7.4			
Max Q Clear (g_c+I1), s		7.1	2.0		11.3	2.9	2.0		7.2			
Green Ext Time (g_e), s		0.7	39.9		1.8	0.1	14.5		1.2			
Prob of Phs Call (p_c)		1.00	1.00		1.00	0.76	1.00		1.00			
Prob of Max Out (p_x)		0.09	0.80		0.01	0.00	0.09		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			843	1810			499			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3428		1566		3344		1657			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			210		1403		281		768			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			L+TL (Pr/Pm)				L+T			

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	222	0	0	54	43	0	0	70
Grp Sat Flow (s), veh/h/ln	1810	0	0	843	1810	0	0	1532
Q Serve Time (g_s), s	5.1	0.0	0.0	5.0	0.9	0.0	0.0	1.9
Cycle Q Clear Time (g_c), s	5.1	0.0	0.0	9.3	0.9	0.0	0.0	5.2
Perm LT Sat Flow (s_l), veh/h/ln	247	0	0	1323	643	0	0	1247
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	78.6	0.0	0.0	13.1	78.6	0.0	0.0	13.1
Perm LT Serve Time (g_u), s	78.6	0.0	0.0	8.8	78.6	0.0	0.0	9.8
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	5.0	0.0	0.0	0.0	1.9
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.43
Lane Grp Cap (c), veh/h	339	0	0	152	539	0	0	210
V/C Ratio (X)	0.65	0.00	0.00	0.36	0.08	0.00	0.00	0.33
Avail Cap (c_a), veh/h	471	0	0	366	730	0	0	474
Upstream Filter (I)	0.87	0.00	0.00	1.00	0.41	0.00	0.00	1.00
Uniform Delay (d1), s/veh	5.0	0.0	0.0	53.9	5.8	0.0	0.0	49.7
Incr Delay (d2), s/veh	2.7	0.0	0.0	3.0	0.0	0.0	0.0	1.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	7.7	0.0	0.0	56.8	5.9	0.0	0.0	51.7
1st-Term Q (Q1), veh/ln	1.5	0.0	0.0	1.6	0.3	0.0	0.0	2.0
2nd-Term Q (Q2), veh/ln	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	1.7	0.0	0.0	1.7	0.3	0.0	0.0	2.1
%ile Storage Ratio (RQ%)	0.46	0.00	0.00	0.08	0.20	0.00	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	914	0	47	0	433	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	1566	0	1791	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1174	0	171	0	1232	0	0
V/C Ratio (X)	0.00	0.78	0.00	0.27	0.00	0.35	0.00	0.00
Avail Cap (c_a), veh/h	0	1174	0	437	0	1232	0	0
Upstream Filter (I)	0.00	0.41	0.00	1.00	0.00	0.87	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	49.1	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	1.8	0.0	0.7	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
Control Delay (d), s/veh	0.0	2.2	0.0	50.9	0.0	0.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.1	0.0	0.2	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.7	0.0	1.4	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.06	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	960	0	112	0	443	0	54
Grp Sat Flow (s), veh/h/ln	0	1847	0	1403	0	1834	0	1392
Q Serve Time (g_s), s	0.0	0.0	0.0	9.3	0.0	0.0	0.0	4.3
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	9.3	0.0	0.0	0.0	4.3
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.11	0.00	1.00	0.00	0.15	0.00	0.55
Lane Grp Cap (c), veh/h	0	1211	0	153	0	1262	0	152
V/C Ratio (X)	0.00	0.79	0.00	0.73	0.00	0.35	0.00	0.36
Avail Cap (c_a), veh/h	0	1211	0	392	0	1262	0	389
Upstream Filter (I)	0.00	0.41	0.00	1.00	0.00	0.87	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	51.7	0.0	0.0	0.0	49.5
Incr Delay (d2), s/veh	0.0	2.3	0.0	13.3	0.0	0.7	0.0	3.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.3	0.0	65.0	0.0	0.7	0.0	52.6
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	3.3	0.0	0.0	0.0	1.5
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.6	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	3.8	0.0	0.2	0.0	1.6
%ile Storage Ratio (RQ%)	0.00	0.06	0.00	0.17	0.00	0.02	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

HCM 6th Signalized Intersection Capacity Analysis

3: 2nd Avenue & 13th Street 2044 AM Peak

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	1325	95	50	630	55	5	165	15	75	410	225
Future Volume (veh/h)	215	1325	95	50	630	55	5	165	15	75	410	225
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1900	1885	1885	1841	1870	1870
Adj Flow Rate, veh/h	262	1489	127	81	716	65	13	250	30	89	512	321
Peak Hour Factor	0.82	0.89	0.75	0.62	0.88	0.85	0.38	0.66	0.50	0.84	0.80	0.70
Percent Heavy Veh, %	1	1	1	0	0	0	0	1	1	4	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	537	1736	147	276	1538	140	73	475	57	234	538	456
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
Prop Arrive On Green	0.20	1.00	1.00	0.08	0.92	0.92	0.29	0.29	0.29	0.29	0.29	0.29
Unsig. Movement Delay												
Ln Grp Delay, s/veh	11.9	3.9	4.1	15.7	4.6	4.5	60.1	0.0	36.9	47.5	69.3	43.5
Ln Grp LOS	B	A	A	B	A	A	E	A	D	D	E	D
Approach Vol, veh/h		1878			862			293			922	
Approach Delay, s/veh		5.1			5.6			37.9			58.2	
Approach LOS		A			A			D			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		10.7	68.3		41.0	17.9	61.1		41.0			
Change Period (Y+Rc), s		6.0	6.0		6.5	6.0	6.0		6.5			
Max Green (Gmax), s		15.0	52.0		34.5	20.0	47.0		34.5			
Max Allow Headway (MAH), s		3.8	7.3		5.3	3.8	7.3		5.8			
Max Q Clear (g_c+I1), s		4.8	2.0		36.5	11.4	5.6		34.2			
Green Ext Time (g_e), s		0.1	35.6		0.0	0.5	11.9		0.2			
Prob of Phs Call (p_c)		0.93	1.00		1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.62		1.00	0.04	0.08		1.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			669	1795			1082			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3342		1651		3347		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			283		198		304		1585			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	81	0	0	13	262	0	0	89
Grp Sat Flow (s), veh/h/ln	1810	0	0	669	1795	0	0	1082
Q Serve Time (g_s), s	2.8	0.0	0.0	2.3	9.4	0.0	0.0	9.0
Cycle Q Clear Time (g_c), s	2.8	0.0	0.0	34.5	9.4	0.0	0.0	24.3
Perm LT Sat Flow (s_l), veh/h/ln	318	0	0	669	697	0	0	1082
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	55.1	0.0	0.0	34.5	57.1	0.0	0.0	34.5
Perm LT Serve Time (g_u), s	55.1	0.0	0.0	2.3	51.5	0.0	0.0	19.2
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	2.3	2.8	0.0	0.0	9.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	276	0	0	73	537	0	0	234
V/C Ratio (X)	0.29	0.00	0.00	0.18	0.49	0.00	0.00	0.38
Avail Cap (c_a), veh/h	432	0	0	73	659	0	0	234
Upstream Filter (I)	0.95	0.00	0.00	1.00	0.37	0.00	0.00	1.00
Uniform Delay (d1), s/veh	15.2	0.0	0.0	58.9	11.6	0.0	0.0	46.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.2	0.3	0.0	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
Control Delay (d), s/veh	15.7	0.0	0.0	60.1	11.9	0.0	0.0	47.5
1st-Term Q (Q1), veh/ln	1.1	0.0	0.0	0.4	3.0	0.0	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	1.2	0.0	0.0	0.4	3.1	0.0	0.0	2.5
%ile Storage Ratio (RQ%)	0.33	0.00	0.00	0.14	0.96	0.00	0.00	0.87
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	794	0	0	0	386	0	512
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	32.2
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	32.2
Lane Grp Cap (c), veh/h	0	930	0	0	0	829	0	538
V/C Ratio (X)	0.00	0.85	0.00	0.00	0.00	0.47	0.00	0.95
Avail Cap (c_a), veh/h	0	930	0	0	0	829	0	538
Upstream Filter (I)	0.00	0.37	0.00	0.00	0.00	0.95	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	2.8	0.0	41.9
Incr Delay (d2), s/veh	0.0	3.9	0.0	0.0	0.0	1.8	0.0	27.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.9	0.0	0.0	0.0	4.6	0.0	69.3
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.9	0.0	14.7
2nd-Term Q (Q2), veh/ln	0.0	1.0	0.0	0.0	0.0	0.4	0.0	4.1

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.0	0.0	0.0	0.0	1.3	0.0	18.8
%ile Storage Ratio (RQ%)	0.00	0.09	0.00	0.00	0.00	0.09	0.00	0.89
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	822	0	280	0	395	0	321
Grp Sat Flow (s), veh/h/ln	0	1834	0	1850	0	1845	0	1585
Q Serve Time (g_s), s	0.0	0.0	0.0	15.3	0.0	3.6	0.0	21.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	15.3	0.0	3.6	0.0	21.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.11	0.00	0.16	0.00	1.00
Lane Grp Cap (c), veh/h	0	953	0	532	0	848	0	456
V/C Ratio (X)	0.00	0.86	0.00	0.53	0.00	0.47	0.00	0.70
Avail Cap (c_a), veh/h	0	953	0	532	0	848	0	456
Upstream Filter (I)	0.00	0.37	0.00	1.00	0.00	0.95	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	35.9	0.0	2.8	0.0	38.2
Incr Delay (d2), s/veh	0.0	4.1	0.0	1.0	0.0	1.7	0.0	5.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.1	0.0	36.9	0.0	4.5	0.0	43.5
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	6.9	0.0	0.9	0.0	8.4
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.1	0.0	0.4	0.0	0.7
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	7.0	0.0	1.3	0.0	9.1
%ile Storage Ratio (RQ%)	0.00	0.09	0.00	0.28	0.00	0.09	0.00	0.43
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2044 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1220	55	40	735	25	20	50	30	5	65	20
Future Volume (veh/h)	70	1220	55	40	735	25	20	50	30	5	65	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.99	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1841	1885	1885	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	97	1371	71	51	845	29	25	104	49	8	96	37
Peak Hour Factor	0.72	0.89	0.77	0.78	0.87	0.85	0.80	0.48	0.61	0.63	0.68	0.54
Percent Heavy Veh, %	0	1	1	4	1	1	3	3	3	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	518	2466	127	319	2512	86	58	178	77	38	202	74
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
Prop Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.3	0.7	0.7	0.8	0.5	0.5	47.1	0.0	0.0	44.9	0.0	0.0
Ln Grp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1539			925			178			141	
Approach Delay, s/veh		0.6			0.6			47.1			44.9	
Approach LOS		A			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			6.0		8.0		6.0		8.0			
Phs Duration (G+Y+Rc), s			91.4		28.6		91.4		28.6			
Change Period (Y+Rc), s			6.0		6.5		6.0		6.5			
Max Green (Gmax), s			79.0		28.5		79.0		28.5			
Max Allow Headway (MAH), s			7.3		5.9		7.5		5.4			
Max Q Clear (g_c+I1), s			2.0		14.7		2.0		11.8			
Green Ext Time (g_e), s			42.6		0.9		18.7		0.6			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.38		0.03		0.03		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			644		130		364		35			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3465		965		3530		1098			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			179		416		121		403			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment			L		L+T+R		L		L+T+R			

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2044 AM Peak

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	97	0	178	0	51	0	141
Grp Sat Flow (s), veh/h/ln	0	644	0	1511	0	364	0	1536
Q Serve Time (g_s), s	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	12.7	0.0	0.0	0.0	9.8
Perm LT Sat Flow (s_l), veh/h/ln	0	644	0	1270	0	364	0	1248
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1629	0	0	0	1631
Perm LT Eff Green (g_p), s	0.0	85.4	0.0	22.1	0.0	85.4	0.0	22.1
Perm LT Serve Time (g_u), s	0.0	85.4	0.0	12.3	0.0	85.4	0.0	9.4
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	8.3	0.0	0.0	0.0	13.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	8.3	0.0	0.0	0.0	9.8
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.14	0.00	1.00	0.00	0.06
Lane Grp Cap (c), veh/h	0	518	0	312	0	319	0	314
V/C Ratio (X)	0.00	0.19	0.00	0.57	0.00	0.16	0.00	0.45
Avail Cap (c_a), veh/h	0	518	0	391	0	319	0	395
Upstream Filter (I)	0.00	0.38	0.00	1.00	0.00	0.77	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	45.1	0.0	0.0	0.0	43.9
Incr Delay (d2), s/veh	0.0	0.3	0.0	2.0	0.0	0.8	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
Control Delay (d), s/veh	0.0	0.3	0.0	47.1	0.0	0.8	0.0	44.9
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	4.9	0.0	0.0	0.0	3.8
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	5.1	0.0	0.1	0.0	3.9
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.21	0.00	0.02	0.00	0.18
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	707	0	0	0	429	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1791	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1275	0	0	0	1275	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.34	0.00	0.00
Avail Cap (c_a), veh/h	0	1275	0	0	0	1275	0	0
Upstream Filter (I)	0.00	0.38	0.00	0.00	0.00	0.77	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	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
Control Delay (d), s/veh	0.0	0.7	0.0	0.0	0.0	0.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

4: 3rd Avenue & 13th Street 2044 AM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R			T+R				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	735	0	0	0	445	0	0
Grp Sat Flow (s), veh/h/ln	0	1853	0	0	0	1860	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.10	0.00	0.28	0.00	0.07	0.00	0.26
Lane Grp Cap (c), veh/h	0	1319	0	0	0	1324	0	0
V/C Ratio (X)	0.00	0.56	0.00	0.00	0.00	0.34	0.00	0.00
Avail Cap (c_a), veh/h	0	1319	0	0	0	1324	0	0
Upstream Filter (I)	0.00	0.38	0.00	0.00	0.00	0.77	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	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
Control Delay (d), s/veh	0.0	0.7	0.0	0.0	0.0	0.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2044 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑↔		↘	↑↑	↗
Traffic Volume (veh/h)	325	825	155	100	435	155	115	585	125	225	900	235
Future Volume (veh/h)	325	825	155	100	435	155	115	585	125	225	900	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		0.98
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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1856	1900	1885	1856	1870	1856	1856	1826	1856	1885
Adj Flow Rate, veh/h	349	959	167	152	478	191	128	665	205	312	1047	287
Peak Hour Factor	0.93	0.86	0.93	0.66	0.91	0.81	0.90	0.88	0.61	0.72	0.86	0.82
Percent Heavy Veh, %	0	1	3	0	1	3	2	3	3	5	3	1
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	377	866	375	211	657	288	226	1186	359	399	1338	597
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
Prop Arrive On Green	0.29	0.48	0.48	0.17	0.37	0.37	0.07	0.31	0.31	0.14	0.38	0.38
Unsig. Movement Delay												
Ln Grp Delay, s/veh	54.3	92.9	26.7	45.0	39.7	41.0	30.7	36.9	39.5	31.7	37.5	31.0
Ln Grp LOS	D	F	C	D	D	D	C	D	D	C	D	C
Approach Vol, veh/h		1475			821			998			1646	
Approach Delay, s/veh		76.3			41.0			36.8			35.2	
Approach LOS		E			D			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		23.5	43.5	17.0	36.0	14.9	52.1	24.0	29.0			
Change Period (Y+Rc), s		7.0	6.5	7.0	7.0	7.0	6.5	6.5	7.0			
Max Green (Gmax), s		21.0	32.5	10.0	29.0	21.0	32.5	17.5	22.0			
Max Allow Headway (MAH), s		3.8	7.3	3.8	6.1	3.8	7.0	3.8	5.9			
Max Q Clear (g_c+I1), s		16.1	19.7	10.1	31.0	7.8	33.4	19.5	15.8			
Green Ext Time (g_e), s		0.4	7.3	0.0	0.0	0.2	0.0	0.0	2.6			
Prob of Phs Call (p_c)		1.00	1.00	0.99	1.00	0.99	1.00	1.00	1.00			
Prob of Max Out (p_x)		0.52	0.70	1.00	1.00	0.00	1.00	1.00	0.96			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1739		1810		1781		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3850		3582		3526		3582			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1167		1551		1573		1572			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	312	0	152	0	128	0	349	0
Grp Sat Flow (s), veh/h/ln	1739	0	1810	0	1781	0	1810	0
Q Serve Time (g_s), s	14.1	0.0	8.1	0.0	5.8	0.0	17.5	0.0
Cycle Q Clear Time (g_c), s	14.1	0.0	8.1	0.0	5.8	0.0	17.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	621	0	508	0	410	0	780	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	39.0	0.0	22.0	0.0	37.0	0.0	24.0	0.0
Perm LT Serve Time (g_u), s	19.3	0.0	0.0	0.0	14.1	0.0	8.2	0.0
Perm LT Q Serve Time (g_ps), s	19.3	0.0	0.0	0.0	10.4	0.0	8.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	399	0	211	0	226	0	377	0
V/C Ratio (X)	0.78	0.00	0.72	0.00	0.57	0.00	0.93	0.00
Avail Cap (c_a), veh/h	464	0	211	0	420	0	377	0
Upstream Filter (I)	1.00	0.00	0.98	0.00	1.00	0.00	0.80	0.00
Uniform Delay (d1), s/veh	24.4	0.0	33.9	0.0	28.5	0.0	30.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	11.2	0.0	2.2	0.0	24.4	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	31.7	0.0	45.0	0.0	30.7	0.0	54.3	0.0
1st-Term Q (Q1), veh/ln	5.7	0.0	3.2	0.0	2.5	0.0	7.0	0.0
2nd-Term Q (Q2), veh/ln	0.8	0.0	0.7	0.0	0.1	0.0	2.6	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	6.5	0.0	3.9	0.0	2.6	0.0	9.5	0.0
%ile Storage Ratio (RQ%)	0.31	0.00	0.92	0.00	0.46	0.00	1.76	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	2	0	2	0	2
Grp Vol (v), veh/h	0	582	0	959	0	1047	0	478
Grp Sat Flow (s), veh/h/ln	0	1689	0	1791	0	1763	0	1791
Q Serve Time (g_s), s	0.0	17.3	0.0	29.0	0.0	31.4	0.0	13.8
Cycle Q Clear Time (g_c), s	0.0	17.3	0.0	29.0	0.0	31.4	0.0	13.8
Lane Grp Cap (c), veh/h	0	1040	0	866	0	1338	0	657
V/C Ratio (X)	0.00	0.56	0.00	1.11	0.00	0.78	0.00	0.73
Avail Cap (c_a), veh/h	0	1040	0	866	0	1338	0	657
Upstream Filter (I)	0.00	1.00	0.00	0.80	0.00	1.00	0.00	0.98
Uniform Delay (d1), s/veh	0.0	34.7	0.0	31.0	0.0	32.8	0.0	35.4
Incr Delay (d2), s/veh	0.0	2.2	0.0	61.9	0.0	4.6	0.0	4.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	36.9	0.0	92.9	0.0	37.5	0.0	39.7
1st-Term Q (Q1), veh/ln	0.0	7.1	0.0	9.6	0.0	13.2	0.0	5.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	7.4	0.0	0.9	0.0	0.4

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.4	0.0	17.0	0.0	14.1	0.0	5.4
%ile Storage Ratio (RQ%)	0.00	0.32	0.00	1.26	0.00	0.67	0.00	0.42
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	23.3	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	288	0	167	0	287	0	191
Grp Sat Flow (s), veh/h/ln	0	1640	0	1551	0	1573	0	1572
Q Serve Time (g_s), s	0.0	17.7	0.0	8.5	0.0	16.6	0.0	12.2
Cycle Q Clear Time (g_c), s	0.0	17.7	0.0	8.5	0.0	16.6	0.0	12.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.71	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	505	0	375	0	597	0	288
V/C Ratio (X)	0.00	0.57	0.00	0.45	0.00	0.48	0.00	0.66
Avail Cap (c_a), veh/h	0	505	0	375	0	597	0	288
Upstream Filter (I)	0.00	1.00	0.00	0.80	0.00	1.00	0.00	0.98
Uniform Delay (d1), s/veh	0.0	34.9	0.0	25.7	0.0	28.2	0.0	34.9
Incr Delay (d2), s/veh	0.0	4.6	0.0	0.9	0.0	2.8	0.0	6.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	39.5	0.0	26.7	0.0	31.0	0.0	41.0
1st-Term Q (Q1), veh/ln	0.0	7.0	0.0	2.7	0.0	6.2	0.0	4.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	0.5	0.0	0.5
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.7	0.0	2.8	0.0	6.7	0.0	4.5
%ile Storage Ratio (RQ%)	0.00	0.33	0.00	0.43	0.00	0.31	0.00	0.35
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Capacity Analysis
6: 5th Avenue & 13th Street 2044 AM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕↕		↔	↕↕↕		↔	↕		↔	↕	↕↕
Traffic Volume (veh/h)	115	950	70	80	620	100	15	40	25	80	75	75
Future Volume (veh/h)	115	950	70	80	620	100	15	40	25	80	75	75
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1856	1856	1870	1870	1870	1900	1900	1900	1870	1870	1870
Adj Flow Rate, veh/h	135	1145	103	127	639	149	30	45	58	103	79	82
Peak Hour Factor	0.85	0.83	0.68	0.63	0.97	0.67	0.50	0.88	0.43	0.78	0.95	0.92
Percent Heavy Veh, %	0	3	3	2	2	2	0	0	0	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	533	2982	268	416	2612	599	212	119	153	195	297	248
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
Prop Arrive On Green	0.09	1.00	1.00	0.04	0.63	0.63	0.16	0.16	0.16	0.16	0.16	0.16
Unsig. Movement Delay												
Ln Grp Delay, s/veh	6.9	0.0	0.1	7.4	10.0	10.3	47.7	0.0	46.0	54.4	44.8	45.6
Ln Grp LOS	A	A	A	A	B	B	D	A	D	D	D	D
Approach Vol, veh/h		1383			915			133			264	
Approach Delay, s/veh		0.7			9.7			46.4			48.8	
Approach LOS		A			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		12.1	82.3		25.6	12.4	82.0		25.6			
Change Period (Y+Rc), s		7.0	6.5		6.5	7.0	6.5		6.5			
Max Green (Gmax), s		13.0	55.0		32.0	13.0	55.0		32.0			
Max Allow Headway (MAH), s		3.8	7.3		5.1	3.8	7.3		4.4			
Max Q Clear (g_c+I1), s		5.0	2.0		9.1	5.3	10.3		17.8			
Green Ext Time (g_e), s		0.2	24.5		0.6	0.2	12.5		0.8			
Prob of Phs Call (p_c)		0.99	1.00		1.00	0.99	1.00		1.00			
Prob of Max Out (p_x)		0.02	0.24		0.00	0.03	0.06		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5				3		
Mvmt Sat Flow, veh/h		1781			1243	1810				1290		
Through Movement Data												
Assigned Mvmt			2		4		6			8		
Mvmt Sat Flow, veh/h			4721		746		4150			1870		
Right-Turn Movement Data												
Assigned Mvmt			12		14		16			18		
Mvmt Sat Flow, veh/h			424		962		952			1561		
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2044 AM Peak

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	127	0	0	30	135	0	0	103
Grp Sat Flow (s), veh/h/ln	1781	0	0	1243	1810	0	0	1290
Q Serve Time (g_s), s	3.0	0.0	0.0	2.6	3.3	0.0	0.0	9.3
Cycle Q Clear Time (g_c), s	3.0	0.0	0.0	7.1	3.3	0.0	0.0	15.8
Perm LT Sat Flow (s_l), veh/h/ln	445	0	0	1243	698	0	0	1290
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	75.5	0.0	0.0	19.1	75.5	0.0	0.0	19.1
Perm LT Serve Time (g_u), s	75.5	0.0	0.0	14.6	67.3	0.0	0.0	12.6
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	2.6	1.9	0.0	0.0	9.3
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	416	0	0	212	533	0	0	195
V/C Ratio (X)	0.31	0.00	0.00	0.14	0.25	0.00	0.00	0.53
Avail Cap (c_a), veh/h	533	0	0	345	647	0	0	334
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.09	0.00	0.00	1.00
Uniform Delay (d1), s/veh	6.9	0.0	0.0	47.4	6.9	0.0	0.0	52.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	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
Control Delay (d), s/veh	7.4	0.0	0.0	47.7	6.9	0.0	0.0	54.4
1st-Term Q (Q1), veh/ln	1.1	0.0	0.0	0.8	1.1	0.0	0.0	3.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	1.1	0.0	0.0	0.8	1.1	0.0	0.0	3.1
%ile Storage Ratio (RQ%)	0.60	0.00	0.00	0.03	0.26	0.00	0.00	0.14
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	2	0	0	0	2	0	1
Grp Vol (v), veh/h	0	819	0	0	0	522	0	79
Grp Sat Flow (s), veh/h/ln	0	1689	0	0	0	1702	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	8.1	0.0	4.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	8.1	0.0	4.5
Lane Grp Cap (c), veh/h	0	2133	0	0	0	2142	0	297
V/C Ratio (X)	0.00	0.38	0.00	0.00	0.00	0.24	0.00	0.27
Avail Cap (c_a), veh/h	0	2133	0	0	0	2142	0	499
Upstream Filter (I)	0.00	0.09	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	9.7	0.0	44.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.3	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	10.0	0.0	44.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	2.9	0.0	2.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2044 AM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	3.0	0.0	2.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.10
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	429	0	103	0	266	0	82
Grp Sat Flow (s), veh/h/ln	0	1768	0	1708	0	1698	0	1561
Q Serve Time (g_s), s	0.0	0.0	0.0	6.5	0.0	8.3	0.0	5.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	6.5	0.0	8.3	0.0	5.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.24	0.00	0.56	0.00	0.56	0.00	1.00
Lane Grp Cap (c), veh/h	0	1117	0	272	0	1069	0	248
V/C Ratio (X)	0.00	0.38	0.00	0.38	0.00	0.25	0.00	0.33
Avail Cap (c_a), veh/h	0	1117	0	455	0	1069	0	416
Upstream Filter (I)	0.00	0.09	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	45.2	0.0	9.8	0.0	44.8
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.9	0.0	0.6	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
Control Delay (d), s/veh	0.0	0.1	0.0	46.0	0.0	10.3	0.0	45.6
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.8	0.0	3.0	0.0	2.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	2.8	0.0	3.1	0.0	2.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.12	0.00	0.07	0.00	0.10
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Capacity Analysis

1: Broadway & 13th Street 2044 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1035	80	155	1640	30	110	45	100	45	55	225
Future Volume (veh/h)	90	1035	80	155	1640	30	110	45	100	45	55	225
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.99
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	122	1137	92	182	1885	54	151	78	145	90	75	268
Peak Hour Factor	0.74	0.91	0.87	0.85	0.87	0.56	0.73	0.58	0.69	0.50	0.73	0.84
Percent Heavy Veh, %	0	0	0	1	0	0	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	260	1866	151	311	2042	58	51	119	222	113	84	325
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
Prop Arrive On Green	0.04	0.55	0.55	0.12	1.00	1.00	0.23	0.23	0.23	0.23	0.23	0.23
Unsig. Movement Delay												
Ln Grp Delay, s/veh	13.5	23.9	23.9	17.2	8.9	9.4	991.4	0.0	53.1	86.4	0.0	66.8
Ln Grp LOS	B	C	C	B	A	A	F	A	D	F	A	E
Approach Vol, veh/h		1351			2121			374			433	
Approach Delay, s/veh		23.0			9.8			432.0			74.3	
Approach LOS		C			A			F			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		7.0			
Phs Duration (G+Y+Rc), s		15.7	84.3		40.0	13.2	86.8		40.0			
Change Period (Y+Rc), s		7.0	7.0		7.5	7.0	7.0		7.5			
Max Green (Gmax), s		16.0	70.0		32.5	16.0	70.0		32.5			
Max Allow Headway (MAH), s		3.8	7.3		5.1	3.8	7.2		4.6			
Max Q Clear (g_c+I1), s		8.4	33.8		34.5	6.1	2.0		34.5			
Green Ext Time (g_e), s		0.3	20.5		0.0	0.2	55.5		0.0			
Prob of Phs Call (p_c)		1.00	1.00		1.00	0.99	1.00		1.00			
Prob of Max Out (p_x)		0.05	0.45		1.00	0.00	0.76		1.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1795			1054	1810			316			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3380		513		3583		360			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			273		954		102		1400			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L+T			

HCM 6th Signalized Intersection Capacity Analysis
 1: Broadway & 13th Street 2044 PM Peak

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	182	0	0	151	122	0	0	165
Grp Sat Flow (s), veh/h/ln	1795	0	0	1054	1810	0	0	676
Q Serve Time (g_s), s	6.4	0.0	0.0	0.0	4.1	0.0	0.0	13.2
Cycle Q Clear Time (g_c), s	6.4	0.0	0.0	32.5	4.1	0.0	0.0	32.5
Perm LT Sat Flow (s_l), veh/h/ln	457	0	0	1054	232	0	0	1174
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	77.3	0.0	0.0	32.5	77.3	0.0	0.0	32.5
Perm LT Serve Time (g_u), s	45.5	0.0	0.0	0.0	77.3	0.0	0.0	13.2
Perm LT Q Serve Time (g_ps), s	18.8	0.0	0.0	0.0	0.0	0.0	0.0	13.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.55
Lane Grp Cap (c), veh/h	311	0	0	51	260	0	0	197
V/C Ratio (X)	0.58	0.00	0.00	2.94	0.47	0.00	0.00	0.84
Avail Cap (c_a), veh/h	405	0	0	51	386	0	0	197
Upstream Filter (I)	0.56	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	16.3	0.0	0.0	70.0	12.2	0.0	0.0	60.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	921.4	1.3	0.0	0.0	26.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	17.2	0.0	0.0	991.4	13.5	0.0	0.0	86.4
1st-Term Q (Q1), veh/ln	2.3	0.0	0.0	1.9	1.7	0.0	0.0	5.9
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	13.2	0.1	0.0	0.0	1.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	2.4	0.0	0.0	15.0	1.8	0.0	0.0	7.3
%ile Storage Ratio (RQ%)	1.18	0.00	0.00	0.60	0.30	0.00	0.00	0.36
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	24.9	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	607	0	0	0	945	0	0
Grp Sat Flow (s), veh/h/ln	0	1805	0	0	0	1805	0	0
Q Serve Time (g_s), s	0.0	31.7	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	31.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	997	0	0	0	1029	0	0
V/C Ratio (X)	0.00	0.61	0.00	0.00	0.00	0.92	0.00	0.00
Avail Cap (c_a), veh/h	0	997	0	0	0	1029	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.56	0.00	0.00
Uniform Delay (d1), s/veh	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.8	0.0	0.0	0.0	8.9	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
Control Delay (d), s/veh	0.0	23.9	0.0	0.0	0.0	8.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	2.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 1: Broadway & 13th Street 2044 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	14.0	0.0	0.0	0.0	2.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.30	0.00	0.00	0.00	0.18	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	622	0	223	0	994	0	268
Grp Sat Flow (s), veh/h/ln	0	1848	0	1467	0	1881	0	1400
Q Serve Time (g_s), s	0.0	31.8	0.0	19.3	0.0	0.0	0.0	25.5
Cycle Q Clear Time (g_c), s	0.0	31.8	0.0	19.3	0.0	0.0	0.0	25.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.65	0.00	0.05	0.00	1.00
Lane Grp Cap (c), veh/h	0	1020	0	341	0	1072	0	325
V/C Ratio (X)	0.00	0.61	0.00	0.65	0.00	0.93	0.00	0.82
Avail Cap (c_a), veh/h	0	1020	0	341	0	1072	0	325
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.56	0.00	1.00
Uniform Delay (d1), s/veh	0.0	21.2	0.0	48.7	0.0	0.0	0.0	51.0
Incr Delay (d2), s/veh	0.0	2.7	0.0	4.5	0.0	9.4	0.0	15.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.9	0.0	53.1	0.0	9.4	0.0	66.8
1st-Term Q (Q1), veh/ln	0.0	13.6	0.0	7.1	0.0	0.0	0.0	8.9
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.4	0.0	2.8	0.0	1.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	14.4	0.0	7.5	0.0	2.8	0.0	10.4
%ile Storage Ratio (RQ%)	0.00	0.31	0.00	0.30	0.00	0.20	0.00	0.51
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	57.4
HCM 6th LOS	E

HCM 6th Signalized Intersection Capacity Analysis

2: 1st Avenue & 13th Street 2044 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕	↗		↗	↖
Traffic Volume (veh/h)	20	1085	25	45	1730	5	95	40	150	10	15	25
Future Volume (veh/h)	20	1085	25	45	1730	5	95	40	150	10	15	25
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	1192	45	54	1901	8	167	60	205	30	27	33
Peak Hour Factor	0.71	0.91	0.55	0.84	0.91	0.63	0.57	0.67	0.73	0.33	0.56	0.75
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	249	2269	86	403	2407	10	257	291	252	163	140	188
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
Prop Arrive On Green	0.05	1.00	1.00	0.06	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Unsig. Movement Delay												
Ln Grp Delay, s/veh	7.8	1.3	1.3	7.4	1.7	1.7	63.6	49.9	71.3	51.2	0.0	49.7
Ln Grp LOS	A	A	A	A	A	A	E	D	E	D	A	D
Approach Vol, veh/h		1265			1963			432			90	
Approach Delay, s/veh		1.4			1.9			65.3			50.5	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		7.0	1.1	4.0		8.0			
Phs Duration (G+Y+Rc), s		10.9	97.8		31.3	9.8	98.9		31.3			
Change Period (Y+Rc), s		6.5	7.5		6.5	6.5	7.5		6.5			
Max Green (Gmax), s		15.5	72.5		31.5	15.5	72.5		31.5			
Max Allow Headway (MAH), s		4.8	7.2		6.7	4.8	7.2		7.6			
Max Q Clear (g_c+I1), s		3.4	2.0		22.3	2.7	2.0		9.0			
Green Ext Time (g_e), s		0.1	28.2		2.5	0.0	56.1		0.8			
Prob of Phs Call (p_c)		0.88	1.00		1.00	0.66	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.17		0.63	0.00	0.73		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			1161	1810			683			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3517		1643		3687		790			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			133		1425		16		1062			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			L+TL (Pr/Pm)				L+T			

HCM 6th Signalized Intersection Capacity Analysis

2: 1st Avenue & 13th Street 2044 PM Peak

07/22/2021

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	54	0	0	167	28	0	0	48
Grp Sat Flow (s), veh/h/ln	1810	0	0	1161	1810	0	0	1196
Q Serve Time (g_s), s	1.4	0.0	0.0	16.6	0.7	0.0	0.0	2.7
Cycle Q Clear Time (g_c), s	1.4	0.0	0.0	20.3	0.7	0.0	0.0	7.0
Perm LT Sat Flow (s_l), veh/h/ln	457	0	0	1364	239	0	0	1132
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	90.3	0.0	0.0	24.8	90.3	0.0	0.0	24.8
Perm LT Serve Time (g_u), s	90.3	0.0	0.0	21.1	90.3	0.0	0.0	20.4
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	16.6	0.0	0.0	0.0	2.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.62
Lane Grp Cap (c), veh/h	403	0	0	257	249	0	0	253
V/C Ratio (X)	0.13	0.00	0.00	0.65	0.11	0.00	0.00	0.19
Avail Cap (c_a), veh/h	547	0	0	322	406	0	0	318
Upstream Filter (I)	0.31	0.00	0.00	1.00	0.77	0.00	0.00	1.00
Uniform Delay (d1), s/veh	7.3	0.0	0.0	57.5	7.6	0.0	0.0	50.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	6.0	0.2	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
Control Delay (d), s/veh	7.4	0.0	0.0	63.6	7.8	0.0	0.0	51.2
1st-Term Q (Q1), veh/ln	0.5	0.0	0.0	5.7	0.3	0.0	0.0	1.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.5	0.0	0.0	6.2	0.3	0.0	0.0	1.6
%ile Storage Ratio (RQ%)	0.14	0.00	0.00	0.27	0.18	0.00	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	607	0	60	0	930	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	1643	0	1805	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1155	0	291	0	1178	0	0
V/C Ratio (X)	0.00	0.53	0.00	0.21	0.00	0.79	0.00	0.00
Avail Cap (c_a), veh/h	0	1155	0	370	0	1178	0	0
Upstream Filter (I)	0.00	0.77	0.00	1.00	0.00	0.31	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	49.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.7	0.0	1.7	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
Control Delay (d), s/veh	0.0	1.3	0.0	49.9	0.0	1.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.1	0.0	0.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis 2: 1st Avenue & 13th Street 2044 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.4	0.0	1.9	0.0	0.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.08	0.00	0.05	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	630	0	205	0	979	0	42
Grp Sat Flow (s), veh/h/ln	0	1859	0	1425	0	1897	0	1339
Q Serve Time (g_s), s	0.0	0.0	0.0	19.4	0.0	0.0	0.0	3.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	19.4	0.0	0.0	0.0	3.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.07	0.00	1.00	0.00	0.01	0.00	0.79
Lane Grp Cap (c), veh/h	0	1199	0	252	0	1238	0	237
V/C Ratio (X)	0.00	0.53	0.00	0.81	0.00	0.79	0.00	0.18
Avail Cap (c_a), veh/h	0	1199	0	321	0	1238	0	301
Upstream Filter (I)	0.00	0.77	0.00	1.00	0.00	0.31	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	55.4	0.0	0.0	0.0	48.9
Incr Delay (d2), s/veh	0.0	1.3	0.0	15.9	0.0	1.7	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
Control Delay (d), s/veh	0.0	1.3	0.0	71.3	0.0	1.7	0.0	49.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	7.0	0.0	0.0	0.0	1.3
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	1.1	0.0	0.6	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.4	0.0	8.1	0.0	0.6	0.0	1.3
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.35	0.00	0.05	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis
 3: 2nd Avenue & 13th Street 2044 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (veh/h)	250	960	40	20	1420	55	20	295	15	55	155	340
Future Volume (veh/h)	250	960	40	20	1420	55	20	295	15	55	155	340
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1900	1885	1885	1870	1870	1900
Adj Flow Rate, veh/h	269	1021	53	24	1632	66	31	454	30	83	194	374
Peak Hour Factor	0.93	0.94	0.75	0.85	0.87	0.83	0.65	0.65	0.50	0.66	0.80	0.91
Percent Heavy Veh, %	0	1	1	0	0	0	0	1	1	2	2	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	366	2050	106	371	1859	75	195	443	29	51	474	408
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
Prop Arrive On Green	0.18	1.00	1.00	0.04	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25
Unsig. Movement Delay												
Ln Grp Delay, s/veh	14.5	1.4	1.4	14.3	8.8	8.9	50.8	0.0	99.8	419.1	44.3	76.2
Ln Grp LOS	B	A	A	B	A	A	D	A	F	F	D	E
Approach Vol, veh/h		1343			1722			515			651	
Approach Delay, s/veh		4.0			8.9			96.9			110.4	
Approach LOS		A			A			F			F	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		9.0	89.0		42.0	18.4	79.6		42.0			
Change Period (Y+Rc), s		6.0	6.0		6.5	6.0	6.0		6.5			
Max Green (Gmax), s		19.0	67.0		35.5	19.0	67.0		35.5			
Max Allow Headway (MAH), s		3.8	7.3		5.3	3.8	7.2		5.5			
Max Q Clear (g_c+I1), s		2.8	2.0		37.5	11.9	2.0		37.5			
Green Ext Time (g_e), s		0.0	21.5		0.0	0.5	45.6		0.0			
Prob of Phs Call (p_c)		0.61	1.00		1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.10		1.00	0.11	0.59		1.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1810			857	1810			911			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3459		1749		3537		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			180		116		142		1610			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

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Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	24	0	0	31	269	0	0	83
Grp Sat Flow (s), veh/h/ln	1810	0	0	857	1810	0	0	911
Q Serve Time (g_s), s	0.8	0.0	0.0	4.4	9.9	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.8	0.0	0.0	16.5	9.9	0.0	0.0	35.5
Perm LT Sat Flow (s_l), veh/h/ln	533	0	0	857	294	0	0	911
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	73.6	0.0	0.0	35.5	75.6	0.0	0.0	35.5
Perm LT Serve Time (g_u), s	73.6	0.0	0.0	23.4	73.6	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	4.4	9.6	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	371	0	0	195	366	0	0	51
V/C Ratio (X)	0.06	0.00	0.00	0.16	0.74	0.00	0.00	1.61
Avail Cap (c_a), veh/h	577	0	0	195	451	0	0	51
Upstream Filter (I)	0.77	0.00	0.00	1.00	0.84	0.00	0.00	1.00
Uniform Delay (d1), s/veh	14.2	0.0	0.0	50.4	10.5	0.0	0.0	70.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	4.1	0.0	0.0	349.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	14.3	0.0	0.0	50.8	14.5	0.0	0.0	419.1
1st-Term Q (Q1), veh/ln	0.3	0.0	0.0	0.9	3.2	0.0	0.0	1.9
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.4	0.0	0.0	5.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.4	0.0	0.0	1.0	3.6	0.0	0.0	6.8
%ile Storage Ratio (RQ%)	0.10	0.00	0.00	0.32	1.14	0.00	0.00	2.32
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	529	0	0	0	830	0	194
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1
Lane Grp Cap (c), veh/h	0	1061	0	0	0	949	0	474
V/C Ratio (X)	0.00	0.50	0.00	0.00	0.00	0.87	0.00	0.41
Avail Cap (c_a), veh/h	0	1061	0	0	0	949	0	474
Upstream Filter (I)	0.00	0.84	0.00	0.00	0.00	0.77	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.5
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.0	8.8	0.0	0.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.4	0.0	0.0	0.0	8.8	0.0	44.3
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	2.3	0.0	0.1

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.4	0.0	0.0	0.0	2.3	0.0	5.8
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.16	0.00	0.27
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data




















Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	545	0	484	0	868	0	374
Grp Sat Flow (s), veh/h/ln	0	1848	0	1864	0	1874	0	1610
Q Serve Time (g_s), s	0.0	0.0	0.0	35.5	0.0	0.0	0.0	31.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	35.5	0.0	0.0	0.0	31.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.10	0.00	0.06	0.00	0.08	0.00	1.00
Lane Grp Cap (c), veh/h	0	1095	0	473	0	985	0	408
V/C Ratio (X)	0.00	0.50	0.00	1.02	0.00	0.88	0.00	0.92
Avail Cap (c_a), veh/h	0	1095	0	473	0	985	0	408
Upstream Filter (I)	0.00	0.84	0.00	1.00	0.00	0.77	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	52.3	0.0	0.0	0.0	50.8
Incr Delay (d2), s/veh	0.0	1.4	0.0	47.6	0.0	8.9	0.0	25.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.4	0.0	99.8	0.0	8.9	0.0	76.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	16.5	0.0	0.0	0.0	12.7
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	6.2	0.0	2.4	0.0	2.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.4	0.0	22.8	0.0	2.4	0.0	15.6
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.91	0.00	0.16	0.00	0.73
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	980	20	20	1420	20	40	65	45	15	20	50
Future Volume (veh/h)	40	980	20	20	1420	20	40	65	45	15	20	50
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1870	1870	1870	1900	1900	1900
Adj Flow Rate, veh/h	74	1032	29	40	1543	30	61	96	58	33	33	77
Peak Hour Factor	0.54	0.95	0.70	0.50	0.92	0.67	0.66	0.68	0.77	0.45	0.61	0.65
Percent Heavy Veh, %	0	1	1	0	0	0	2	2	2	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	294	2609	73	448	2657	52	89	119	65	69	69	124
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
Prop Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Unsig. Movement Delay												
Ln Grp Delay, s/veh	1.6	0.7	0.7	0.2	1.0	0.9	66.4	0.0	0.0	54.5	0.0	0.0
Ln Grp LOS	A	A	A	A	A	A	E	A	A	D	A	A
Approach Vol, veh/h		1135			1613			215			143	
Approach Delay, s/veh		0.8			0.9			66.4			54.5	
Approach LOS		A			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			6.0		8.0		6.0		8.0			
Phs Duration (G+Y+Rc), s			108.7		31.3		108.7		31.3			
Change Period (Y+Rc), s			6.0		6.5		6.0		6.5			
Max Green (Gmax), s			96.0		31.5		96.0		31.5			
Max Allow Headway (MAH), s			7.7		5.9		7.3		5.5			
Max Q Clear (g_c+I1), s			2.0		23.9		2.0		15.7			
Green Ext Time (g_e), s			28.6		0.8		52.2		0.7			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.07		0.50		0.37		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			331		319		540		209			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3556		671		3622		390			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			100		366		70		699			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment			L		L+T+R		L		L+T+R			

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	74	0	215	0	40	0	143
Grp Sat Flow (s), veh/h/ln	0	331	0	1355	0	540	0	1299
Q Serve Time (g_s), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	21.9	0.0	0.0	0.0	13.7
Perm LT Sat Flow (s_l), veh/h/ln	0	331	0	1302	0	540	0	1252
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1221	0	0	0	1197
Perm LT Eff Green (g_p), s	0.0	102.7	0.0	24.8	0.0	102.7	0.0	24.8
Perm LT Serve Time (g_u), s	0.0	102.7	0.0	11.1	0.0	102.7	0.0	2.9
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	3.6	0.0	0.0	0.0	6.4
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	3.6	0.0	0.0	0.0	6.4
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.28	0.00	1.00	0.00	0.23
Lane Grp Cap (c), veh/h	0	294	0	273	0	448	0	262
V/C Ratio (X)	0.00	0.25	0.00	0.79	0.00	0.09	0.00	0.55
Avail Cap (c_a), veh/h	0	294	0	340	0	448	0	327
Upstream Filter (I)	0.00	0.79	0.00	1.00	0.00	0.51	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	56.3	0.0	0.0	0.0	52.7
Incr Delay (d2), s/veh	0.0	1.6	0.0	10.1	0.0	0.2	0.0	1.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.6	0.0	66.4	0.0	0.2	0.0	54.5
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	7.5	0.0	0.0	0.0	4.7
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.8	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	8.2	0.0	0.0	0.0	4.8
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.34	0.00	0.01	0.00	0.22
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	520	0	0	0	768	0	0
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1314	0	0	0	1324	0	0
V/C Ratio (X)	0.00	0.40	0.00	0.00	0.00	0.58	0.00	0.00
Avail Cap (c_a), veh/h	0	1314	0	0	0	1324	0	0
Upstream Filter (I)	0.00	0.79	0.00	0.00	0.00	0.51	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	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
Control Delay (d), s/veh	0.0	0.7	0.0	0.0	0.0	1.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 4: 3rd Avenue & 13th Street 2044 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R			T+R				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	541	0	0	0	805	0	0
Grp Sat Flow (s), veh/h/ln	0	1865	0	0	0	1887	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.05	0.00	0.27	0.00	0.04	0.00	0.54
Lane Grp Cap (c), veh/h	0	1368	0	0	0	1385	0	0
V/C Ratio (X)	0.00	0.40	0.00	0.00	0.00	0.58	0.00	0.00
Avail Cap (c_a), veh/h	0	1368	0	0	0	1385	0	0
Upstream Filter (I)	0.00	0.79	0.00	0.00	0.00	0.51	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	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
Control Delay (d), s/veh	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2044 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑↔		↘	↑↑	↗
Traffic Volume (veh/h)	285	665	105	85	785	215	190	800	140	205	605	470
Future Volume (veh/h)	285	665	105	85	785	215	190	800	140	205	605	470
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1870	1900	1900	1856	1900	1870	1870	1870	1826	1885
Adj Flow Rate, veh/h	328	731	119	102	826	259	229	964	167	247	605	522
Peak Hour Factor	0.87	0.91	0.88	0.83	0.95	0.83	0.83	0.83	0.84	0.83	1.00	0.90
Percent Heavy Veh, %	0	1	2	0	0	3	0	2	2	2	5	1
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	262	1106	483	266	949	413	333	1466	253	313	1185	545
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
Prop Arrive On Green	0.21	0.62	0.62	0.05	0.26	0.26	0.10	0.33	0.33	0.11	0.34	0.34
Unsig. Movement Delay												
Ln Grp Delay, s/veh	172.7	23.6	19.8	36.1	57.3	48.5	31.1	42.7	45.5	40.5	38.3	74.4
Ln Grp LOS	F	C	B	D	E	D	C	D	D	D	D	E
Approach Vol, veh/h		1178			1187			1360			1374	
Approach Delay, s/veh		64.7			53.5			41.5			52.4	
Approach LOS		E			D			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		21.8	53.4	14.6	50.2	20.9	54.3	21.0	43.8			
Change Period (Y+Rc), s		7.0	6.5	7.0	7.0	7.0	6.5	6.5	7.0			
Max Green (Gmax), s		18.0	41.5	9.0	37.0	21.0	38.5	14.5	39.0			
Max Allow Headway (MAH), s		3.8	7.3	3.8	6.1	3.8	6.7	3.8	6.0			
Max Q Clear (g_c+I1), s		14.6	28.4	7.7	20.5	13.5	46.8	16.5	32.6			
Green Ext Time (g_e), s		0.2	9.1	0.0	6.7	0.4	0.0	0.0	4.1			
Prob of Phs Call (p_c)		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00			
Prob of Max Out (p_x)		1.00	0.80	1.00	0.33	0.07	1.00	1.00	0.97			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1781		1810		1810		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			4381		3582		3469		3610			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			757		1563		1596		1571			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2044 PM Peak

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	247	0	102	0	229	0	328	0
Grp Sat Flow (s), veh/h/ln	1781	0	1810	0	1810	0	1810	0
Q Serve Time (g_s), s	12.6	0.0	5.7	0.0	11.5	0.0	14.5	0.0
Cycle Q Clear Time (g_c), s	12.6	0.0	5.7	0.0	11.5	0.0	14.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	498	0	659	0	508	0	528	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	46.9	0.0	36.8	0.0	46.9	0.0	38.7	0.0
Perm LT Serve Time (g_u), s	20.5	0.0	24.7	0.0	28.4	0.0	6.2	0.0
Perm LT Q Serve Time (g_ps), s	20.5	0.0	2.2	0.0	15.2	0.0	6.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	313	0	266	0	333	0	262	0
V/C Ratio (X)	0.79	0.00	0.38	0.00	0.69	0.00	1.25	0.00
Avail Cap (c_a), veh/h	353	0	284	0	426	0	262	0
Upstream Filter (I)	1.00	0.00	0.94	0.00	1.00	0.00	0.92	0.00
Uniform Delay (d1), s/veh	30.2	0.0	35.2	0.0	27.9	0.0	34.1	0.0
Incr Delay (d2), s/veh	10.3	0.0	0.9	0.0	3.2	0.0	138.7	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.5	0.0	36.1	0.0	31.1	0.0	172.7	0.0
1st-Term Q (Q1), veh/ln	5.4	0.0	2.6	0.0	5.0	0.0	5.7	0.0
2nd-Term Q (Q2), veh/ln	0.9	0.0	0.1	0.0	0.3	0.0	10.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	6.3	0.0	2.6	0.0	5.3	0.0	15.8	0.0
%ile Storage Ratio (RQ%)	0.29	0.00	0.62	0.00	0.91	0.00	2.93	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	16.5	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	2	0	2	0	2
Grp Vol (v), veh/h	0	748	0	731	0	605	0	826
Grp Sat Flow (s), veh/h/ln	0	1702	0	1791	0	1735	0	1805
Q Serve Time (g_s), s	0.0	26.3	0.0	18.5	0.0	19.5	0.0	30.6
Cycle Q Clear Time (g_c), s	0.0	26.3	0.0	18.5	0.0	19.5	0.0	30.6
Lane Grp Cap (c), veh/h	0	1139	0	1106	0	1185	0	949
V/C Ratio (X)	0.00	0.66	0.00	0.66	0.00	0.51	0.00	0.87
Avail Cap (c_a), veh/h	0	1139	0	1106	0	1185	0	1006
Upstream Filter (I)	0.00	1.00	0.00	0.92	0.00	1.00	0.00	0.94
Uniform Delay (d1), s/veh	0.0	39.7	0.0	22.1	0.0	36.7	0.0	49.3
Incr Delay (d2), s/veh	0.0	3.0	0.0	1.5	0.0	1.6	0.0	7.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	42.7	0.0	23.6	0.0	38.3	0.0	57.3
1st-Term Q (Q1), veh/ln	0.0	11.0	0.0	5.6	0.0	8.3	0.0	13.8
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.2	0.0	0.3	0.0	1.0

HCM 6th Signalized Intersection Capacity Analysis

5: Veterans Parkway & 13th Street 2044 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	11.5	0.0	5.9	0.0	8.6	0.0	14.8
%ile Storage Ratio (RQ%)	0.00	0.49	0.00	0.43	0.00	0.41	0.00	1.15
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	383	0	119	0	522	0	259
Grp Sat Flow (s), veh/h/ln	0	1733	0	1563	0	1596	0	1571
Q Serve Time (g_s), s	0.0	26.4	0.0	4.8	0.0	44.8	0.0	20.4
Cycle Q Clear Time (g_c), s	0.0	26.4	0.0	4.8	0.0	44.8	0.0	20.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.44	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	580	0	483	0	545	0	413
V/C Ratio (X)	0.00	0.66	0.00	0.25	0.00	0.96	0.00	0.63
Avail Cap (c_a), veh/h	0	580	0	483	0	545	0	438
Upstream Filter (I)	0.00	1.00	0.00	0.92	0.00	1.00	0.00	0.94
Uniform Delay (d1), s/veh	0.0	39.8	0.0	19.4	0.0	45.1	0.0	45.5
Incr Delay (d2), s/veh	0.0	5.8	0.0	0.3	0.0	29.3	0.0	2.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	45.5	0.0	19.8	0.0	74.4	0.0	48.5
1st-Term Q (Q1), veh/ln	0.0	11.3	0.0	1.6	0.0	17.6	0.0	8.0
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.0	0.0	4.4	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	12.2	0.0	1.7	0.0	22.0	0.0	8.3
%ile Storage Ratio (RQ%)	0.00	0.52	0.00	0.25	0.00	1.02	0.00	0.66
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Capacity Analysis
6: 5th Avenue & 13th Street 2044 PM Peak

07/22/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↶↷		↶	↷↶↷		↶	↷		↶	↷	↶
Traffic Volume (veh/h)	65	900	40	50	950	130	15	70	45	100	75	120
Future Volume (veh/h)	65	900	40	50	950	130	15	70	45	100	75	120
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	76	989	49	67	1044	153	22	89	65	118	96	141
Peak Hour Factor	0.86	0.91	0.81	0.75	0.91	0.85	0.67	0.79	0.69	0.85	0.78	0.85
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	1	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	358	3155	156	458	2847	417	228	198	144	197	371	308
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
Prop Arrive On Green	0.07	1.00	1.00	0.03	0.63	0.63	0.20	0.20	0.20	0.20	0.20	0.20
Unsig. Movement Delay												
Ln Grp Delay, s/veh	9.2	0.2	0.5	8.5	13.1	13.5	51.5	0.0	50.6	63.1	48.1	50.8
Ln Grp LOS	A	A	A	A	B	B	D	A	D	E	D	D
Approach Vol, veh/h		1114			1264			176			355	
Approach Delay, s/veh		0.9			13.0			50.7			54.2	
Approach LOS		A			B			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	4.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		11.6	94.5		33.8	11.7	94.4		33.8			
Change Period (Y+Rc), s		7.0	6.5		6.5	7.0	6.5		6.5			
Max Green (Gmax), s		13.0	73.5		33.5	15.0	71.5		33.5			
Max Allow Headway (MAH), s		3.8	7.3		5.3	3.8	7.3		4.4			
Max Q Clear (g_c+I1), s		3.8	2.0		12.9	4.1	17.6		25.9			
Green Ext Time (g_e), s		0.1	20.2		0.9	0.1	23.3		0.9			
Prob of Phs Call (p_c)		0.93	1.00		1.00	0.95	1.00		1.00			
Prob of Max Out (p_x)		0.00	0.05		0.00	0.00	0.20		0.23			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5				3		
Mvmt Sat Flow, veh/h		1810			1158	1810				1239		
Through Movement Data												
Assigned Mvmt			2		4		6			8		
Mvmt Sat Flow, veh/h			5017		1012		4532			1900		
Right-Turn Movement Data												
Assigned Mvmt			12		14		16			18		
Mvmt Sat Flow, veh/h			248		739		663			1580		
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		L (Pr/Pm)			LL (Pr/Pm)				L			

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2044 PM Peak

07/22/2021

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	67	0	0	22	76	0	0	118
Grp Sat Flow (s), veh/h/ln	1810	0	0	1158	1810	0	0	1239
Q Serve Time (g_s), s	1.8	0.0	0.0	2.3	2.1	0.0	0.0	13.0
Cycle Q Clear Time (g_c), s	1.8	0.0	0.0	8.3	2.1	0.0	0.0	23.9
Perm LT Sat Flow (s_l), veh/h/ln	552	0	0	1158	475	0	0	1239
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	87.9	0.0	0.0	27.3	87.9	0.0	0.0	27.3
Perm LT Serve Time (g_u), s	87.9	0.0	0.0	21.3	72.3	0.0	0.0	16.5
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	2.3	2.9	0.0	0.0	13.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	458	0	0	228	358	0	0	197
V/C Ratio (X)	0.15	0.00	0.00	0.10	0.21	0.00	0.00	0.60
Avail Cap (c_a), veh/h	566	0	0	279	491	0	0	252
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.64	0.00	0.00	1.00
Uniform Delay (d1), s/veh	8.3	0.0	0.0	51.3	9.1	0.0	0.0	60.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.2	0.0	0.0	2.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	8.5	0.0	0.0	51.5	9.2	0.0	0.0	63.1
1st-Term Q (Q1), veh/ln	0.7	0.0	0.0	0.7	0.8	0.0	0.0	4.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.7	0.0	0.0	0.7	0.8	0.0	0.0	4.3
%ile Storage Ratio (RQ%)	0.38	0.00	0.00	0.03	0.19	0.00	0.00	0.19
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	2	0	0	0	2	0	1
Grp Vol (v), veh/h	0	676	0	0	0	790	0	96
Grp Sat Flow (s), veh/h/ln	0	1716	0	0	0	1716	0	1900
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	15.6	0.0	6.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	15.6	0.0	6.0
Lane Grp Cap (c), veh/h	0	2158	0	0	0	2155	0	371
V/C Ratio (X)	0.00	0.31	0.00	0.00	0.00	0.37	0.00	0.26
Avail Cap (c_a), veh/h	0	2158	0	0	0	2155	0	455
Upstream Filter (I)	0.00	0.64	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	12.6	0.0	47.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.5	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
Control Delay (d), s/veh	0.0	0.2	0.0	0.0	0.0	13.1	0.0	48.1
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	5.9	0.0	2.9
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

6: 5th Avenue & 13th Street 2044 PM Peak

07/22/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	6.1	0.0	2.9
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.14	0.00	0.13
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	362	0	154	0	407	0	141
Grp Sat Flow (s), veh/h/ln	0	1834	0	1751	0	1765	0	1580
Q Serve Time (g_s), s	0.0	0.0	0.0	10.9	0.0	15.6	0.0	11.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	10.9	0.0	15.6	0.0	11.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.14	0.00	0.42	0.00	0.38	0.00	1.00
Lane Grp Cap (c), veh/h	0	1153	0	342	0	1108	0	308
V/C Ratio (X)	0.00	0.31	0.00	0.45	0.00	0.37	0.00	0.46
Avail Cap (c_a), veh/h	0	1153	0	419	0	1108	0	378
Upstream Filter (I)	0.00	0.64	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	49.7	0.0	12.6	0.0	49.8
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.9	0.0	0.9	0.0	1.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.5	0.0	50.6	0.0	13.5	0.0	50.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	4.8	0.0	6.1	0.0	4.4
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.3	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	4.9	0.0	6.4	0.0	4.5
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.21	0.00	0.14	0.00	0.20
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis 3: 2nd Avenue & 13th Street

2021 AM Peak, Protected Left Turn Phase

03/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (veh/h)	170	1055	75	40	500	45	5	130	10	60	325	180
Future Volume (veh/h)	170	1055	75	40	500	45	5	130	10	60	325	180
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1900	1885	1885	1841	1870	1870
Adj Flow Rate, veh/h	207	1185	100	65	568	53	13	197	20	71	406	257
Peak Hour Factor	0.82	0.89	0.75	0.62	0.88	0.85	0.38	0.66	0.50	0.84	0.80	0.70
Percent Heavy Veh, %	1	1	1	0	0	0	0	1	1	4	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	564	1700	143	254	1560	145	118	371	38	269	465	394
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
Prop Arrive On Green	0.10	0.68	0.68	0.07	0.93	0.93	0.01	0.22	0.22	0.04	0.25	0.25
Unsig. Movement Delay												
Ln Grp Delay, s/veh	13.5	16.9	16.9	17.3	3.3	3.3	37.8	0.0	42.4	34.6	57.4	43.8
Ln Grp LOS	B	B	B	B	A	A	D	A	D	C	E	D
Approach Vol, veh/h		1492			686			230			734	
Approach Delay, s/veh		16.4			4.6			42.1			50.4	
Approach LOS		B			A			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		10.4	67.0	9.7	32.9	15.3	62.1	6.3	36.3			
Change Period (Y+Rc), s		6.0	6.0	4.5	6.5	6.0	6.0	4.5	6.5			
Max Green (Gmax), s		5.0	52.4	5.5	34.1	14.0	43.4	5.1	34.5			
Max Allow Headway (MAH), s		3.8	7.3	3.8	5.3	3.8	7.3	3.8	5.8			
Max Q Clear (g_c+I1), s		4.2	28.1	5.7	14.4	9.1	4.0	2.7	27.0			
Green Ext Time (g_e), s		0.0	16.5	0.0	1.1	0.2	8.7	0.0	2.8			
Prob of Phs Call (p_c)		0.89	1.00	0.91	1.00	1.00	1.00	0.35	1.00			
Prob of Max Out (p_x)		1.00	0.66	1.00	0.00	0.43	0.04	1.00	0.77			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1810		1753		1795		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3344		1684		3338		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			282		171		311		1585			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis 3: 2nd Avenue & 13th Street

2021 AM Peak, Protected Left Turn Phase

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	65	0	71	0	207	0	13	0
Grp Sat Flow (s), veh/h/ln	1810	0	1753	0	1795	0	1810	0
Q Serve Time (g_s), s	2.2	0.0	3.7	0.0	7.1	0.0	0.7	0.0
Cycle Q Clear Time (g_c), s	2.2	0.0	3.7	0.0	7.1	0.0	0.7	0.0
Perm LT Sat Flow (s_l), veh/h/ln	437	0	1146	0	809	0	784	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	56.1	0.0	27.3	0.0	57.0	0.0	26.4	0.0
Perm LT Serve Time (g_u), s	34.9	0.0	14.0	0.0	54.1	0.0	4.8	0.0
Perm LT Q Serve Time (g_ps), s	3.5	0.0	0.9	0.0	1.0	0.0	0.4	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	254	0	269	0	564	0	118	0
V/C Ratio (X)	0.26	0.00	0.26	0.00	0.37	0.00	0.11	0.00
Avail Cap (c_a), veh/h	262	0	274	0	634	0	168	0
Upstream Filter (I)	0.97	0.00	1.00	0.00	0.71	0.00	1.00	0.00
Uniform Delay (d1), s/veh	16.8	0.0	34.1	0.0	13.3	0.0	37.4	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.5	0.0	0.3	0.0	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
Control Delay (d), s/veh	17.3	0.0	34.6	0.0	13.5	0.0	37.8	0.0
1st-Term Q (Q1), veh/ln	0.9	0.0	1.6	0.0	2.7	0.0	0.3	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	0.9	0.0	1.6	0.0	2.8	0.0	0.3	0.0
%ile Storage Ratio (RQ%)	0.26	0.00	0.56	0.00	0.87	0.00	0.10	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	634	0	0	0	307	0	406
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	26.0	0.0	0.0	0.0	2.0	0.0	25.0
Cycle Q Clear Time (g_c), s	0.0	26.0	0.0	0.0	0.0	2.0	0.0	25.0
Lane Grp Cap (c), veh/h	0	910	0	0	0	844	0	465
V/C Ratio (X)	0.00	0.70	0.00	0.00	0.00	0.36	0.00	0.87
Avail Cap (c_a), veh/h	0	910	0	0	0	844	0	538
Upstream Filter (I)	0.00	0.71	0.00	0.00	0.00	0.97	0.00	1.00
Uniform Delay (d1), s/veh	0.0	13.8	0.0	0.0	0.0	2.2	0.0	43.3
Incr Delay (d2), s/veh	0.0	3.1	0.0	0.0	0.0	1.2	0.0	14.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.9	0.0	0.0	0.0	3.3	0.0	57.4
1st-Term Q (Q1), veh/ln	0.0	8.3	0.0	0.0	0.0	0.6	0.0	11.5
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	0.3	0.0	1.8

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.1	0.0	0.0	0.0	0.8	0.0	13.3
%ile Storage Ratio (RQ%)	0.00	0.79	0.00	0.00	0.00	0.06	0.00	0.63
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	651	0	217	0	314	0	257
Grp Sat Flow (s), veh/h/ln	0	1834	0	1854	0	1844	0	1585
Q Serve Time (g_s), s	0.0	26.1	0.0	12.4	0.0	2.0	0.0	17.5
Cycle Q Clear Time (g_c), s	0.0	26.1	0.0	12.4	0.0	2.0	0.0	17.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.09	0.00	0.17	0.00	1.00
Lane Grp Cap (c), veh/h	0	932	0	408	0	862	0	394
V/C Ratio (X)	0.00	0.70	0.00	0.53	0.00	0.36	0.00	0.65
Avail Cap (c_a), veh/h	0	932	0	527	0	862	0	456
Upstream Filter (I)	0.00	0.71	0.00	1.00	0.00	0.97	0.00	1.00
Uniform Delay (d1), s/veh	0.0	13.8	0.0	41.3	0.0	2.2	0.0	40.4
Incr Delay (d2), s/veh	0.0	3.1	0.0	1.1	0.0	1.2	0.0	3.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.9	0.0	42.4	0.0	3.3	0.0	43.8
1st-Term Q (Q1), veh/ln	0.0	8.6	0.0	5.7	0.0	0.6	0.0	6.8
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.1	0.0	0.3	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.4	0.0	5.8	0.0	0.9	0.0	7.2
%ile Storage Ratio (RQ%)	0.00	0.81	0.00	0.23	0.00	0.06	0.00	0.34
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

HCM 6th Signalized Intersection Capacity Analysis 3: 2nd Avenue & 13th Street

2021 PM Peak, Protected Left Turn Phase

03/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	765	30	15	1130	45	15	235	10	45	125	270
Future Volume (veh/h)	200	765	30	15	1130	45	15	235	10	45	125	270
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1900	1900	1900	1885	1885	1870	1870	1900
Adj Flow Rate, veh/h	215	814	40	18	1299	54	23	362	20	68	156	297
Peak Hour Factor	0.93	0.94	0.75	0.85	0.87	0.83	0.65	0.65	0.50	0.66	0.80	0.91
Percent Heavy Veh, %	0	1	1	0	0	0	0	1	1	2	2	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	388	1938	95	362	1782	74	250	392	22	140	445	383
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
Prop Arrive On Green	0.07	0.56	0.56	0.04	1.00	1.00	0.02	0.22	0.22	0.04	0.24	0.24
Unsig. Movement Delay												
Ln Grp Delay, s/veh	14.5	19.0	19.0	16.3	4.5	4.4	41.0	0.0	76.4	45.5	45.0	59.3
Ln Grp LOS	B	B	B	B	A	A	D	A	E	D	D	E
Approach Vol, veh/h		1069			1371			405			521	
Approach Delay, s/veh		18.1			4.6			74.4			53.2	
Approach LOS		B			A			E			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0			
Phs Duration (G+Y+Rc), s		8.5	84.2	9.8	37.5	16.1	76.6	7.5	39.8			
Change Period (Y+Rc), s		6.0	6.0	4.5	6.5	6.0	6.0	4.5	6.5			
Max Green (Gmax), s		5.0	72.0	5.3	34.7	17.0	60.0	5.1	34.9			
Max Allow Headway (MAH), s		3.8	7.3	3.8	5.3	3.8	7.2	3.8	5.5			
Max Q Clear (g_c+I1), s		2.7	20.9	6.1	30.0	9.7	2.0	3.4	26.1			
Green Ext Time (g_e), s		0.0	14.2	0.0	1.0	0.3	30.2	0.0	1.9			
Prob of Phs Call (p_c)		0.50	1.00	0.93	1.00	1.00	1.00	0.59	1.00			
Prob of Max Out (p_x)		1.00	0.06	1.00	1.00	0.07	0.34	1.00	0.42			
Left-Turn Movement Data												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1810		1781		1810		1810				
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3470		1770		3532		1870			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			171		98		147		1610			
Left Lane Group Data												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis 3: 2nd Avenue & 13th Street

2021 PM Peak, Protected Left Turn Phase

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	18	0	68	0	215	0	23	0
Grp Sat Flow (s), veh/h/ln	1810	0	1781	0	1810	0	1810	0
Q Serve Time (g_s), s	0.7	0.0	4.1	0.0	7.7	0.0	1.4	0.0
Cycle Q Clear Time (g_c), s	0.7	0.0	4.1	0.0	7.7	0.0	1.4	0.0
Perm LT Sat Flow (s_l), veh/h/ln	656	0	1001	0	409	0	953	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	70.6	0.0	31.0	0.0	72.6	0.0	31.0	0.0
Perm LT Serve Time (g_u), s	59.3	0.0	3.0	0.0	70.6	0.0	23.6	0.0
Perm LT Q Serve Time (g_ps), s	0.3	0.0	2.0	0.0	2.2	0.0	0.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	362	0	140	0	388	0	250	0
V/C Ratio (X)	0.05	0.00	0.49	0.00	0.55	0.00	0.09	0.00
Avail Cap (c_a), veh/h	394	0	140	0	478	0	278	0
Upstream Filter (I)	0.88	0.00	1.00	0.00	0.91	0.00	1.00	0.00
Uniform Delay (d1), s/veh	16.3	0.0	43.0	0.0	13.3	0.0	40.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.6	0.0	1.1	0.0	0.2	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	16.3	0.0	45.5	0.0	14.5	0.0	41.0	0.0
1st-Term Q (Q1), veh/ln	0.3	0.0	1.8	0.0	3.2	0.0	0.6	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	0.3	0.0	1.9	0.0	3.3	0.0	0.6	0.0
%ile Storage Ratio (RQ%)	0.08	0.00	0.65	0.00	1.03	0.00	0.21	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	420	0	0	0	663	0	156
Grp Sat Flow (s), veh/h/ln	0	1791	0	0	0	1805	0	1870
Q Serve Time (g_s), s	0.0	18.9	0.0	0.0	0.0	0.0	0.0	9.7
Cycle Q Clear Time (g_c), s	0.0	18.9	0.0	0.0	0.0	0.0	0.0	9.7
Lane Grp Cap (c), veh/h	0	1000	0	0	0	911	0	445
V/C Ratio (X)	0.00	0.42	0.00	0.00	0.00	0.73	0.00	0.35
Avail Cap (c_a), veh/h	0	1000	0	0	0	911	0	466
Upstream Filter (I)	0.00	0.91	0.00	0.00	0.00	0.88	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.8	0.0	0.0	0.0	0.0	0.0	44.3
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.0	4.5	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
Control Delay (d), s/veh	0.0	19.0	0.0	0.0	0.0	4.5	0.0	45.0
1st-Term Q (Q1), veh/ln	0.0	7.8	0.0	0.0	0.0	0.0	0.0	4.5
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	1.1	0.0	0.1

HCM 6th Signalized Intersection Capacity Analysis 3: 2nd Avenue & 13th Street

2021 PM Peak, Protected Left Turn Phase

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.2	0.0	0.0	0.0	1.1	0.0	4.6
%ile Storage Ratio (RQ%)	0.00	0.70	0.00	0.00	0.00	0.08	0.00	0.22
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

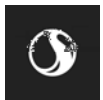
Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	434	0	382	0	690	0	297
Grp Sat Flow (s), veh/h/ln	0	1850	0	1868	0	1873	0	1610
Q Serve Time (g_s), s	0.0	18.9	0.0	28.0	0.0	0.0	0.0	24.1
Cycle Q Clear Time (g_c), s	0.0	18.9	0.0	28.0	0.0	0.0	0.0	24.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.09	0.00	0.05	0.00	0.08	0.00	1.00
Lane Grp Cap (c), veh/h	0	1033	0	413	0	945	0	383
V/C Ratio (X)	0.00	0.42	0.00	0.92	0.00	0.73	0.00	0.77
Avail Cap (c_a), veh/h	0	1033	0	463	0	945	0	401
Upstream Filter (I)	0.00	0.91	0.00	1.00	0.00	0.88	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.8	0.0	53.4	0.0	0.0	0.0	49.8
Incr Delay (d2), s/veh	0.0	1.1	0.0	23.0	0.0	4.4	0.0	9.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	19.0	0.0	76.4	0.0	4.4	0.0	59.3
1st-Term Q (Q1), veh/ln	0.0	8.1	0.0	13.2	0.0	0.0	0.0	9.7
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	2.6	0.0	1.1	0.0	1.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.4	0.0	15.8	0.0	1.1	0.0	10.7
%ile Storage Ratio (RQ%)	0.00	0.72	0.00	0.63	0.00	0.08	0.00	0.50
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Appendix G GROWTH RATE CALCULATIONS



GDOT TADA Count Station Growth Rate (5 Years)

215-0543, 13th St E/O Broadway, 5 year		
Year	Volume	Actuals?
2019	25,000	Estimate
2018	24,800	Actual
2017	24,900	Estimate
2016	24,700	Actual
2015	26,300	Estimate
Growth Rate		-1.3%
Avg Volumes		25,140
Trend Growth Rate		-1.0%

215-0545, 13th St E/O 3rd Ave, 5 year		
Year	Volume	Actuals?
2019	22,700	Estimate
2018	22,500	Actual
2017	23,400	Estimate
2016	23,200	Actual
2015	23,500	Estimate
Growth Rate		-0.9%
Avg Volumes		23,060
Trend Growth Rate		-1.0%

215-0154, Broadway S/O 13th St, 5 year		
Year	Volume	Actuals?
2019	7,030	Estimate
2018	6,890	Actual
2017	7,030	Estimate
2016	6,890	Actual
2015	5,670	Estimate
Growth Rate		5.5%
Avg Volumes		6,700
Trend Growth Rate		4.3%

215-0198, Veterans Pkwy N/O 13th St, 5 year		
Year	Volume	Actuals?
2019	27,700	Estimate
2018	27,500	Actual
2017	26,800	Estimate
2016	26,600	Actual
2015	29,800	Estimate
Growth Rate		-1.8%
Avg Volumes		27,680
Trend Growth Rate		-1.1%

Avg. Trend Growth Rate, 5 Year	-0.6%
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GDOT TADA Count Station Growth Rate (10 Years)

215-0543, 13th St E/O Broadway, 10 year		
Year	Volume	Actuals?
2019	25,000	Estimate
2018	24,800	Actual
2017	24,900	Estimate
2016	24,700	Actual
2015	26,300	Estimate
2014	25,500	-
2013	25,500	-
2012	25,600	-
2011	23,000	-
2010	23,300	-
Growth Rate		0.8%
Avg Volumes		24,860
Trend Growth Rate		2.2%

215-0545, 13th St E/O 3rd Ave, 10 year		
Year	Volume	Actuals?
2019	22,700	Estimate
2018	22,500	Actual
2017	23,400	Estimate
2016	23,200	Actual
2015	23,500	Estimate
2014	22,800	-
2013	22,800	-
2012	22,900	-
2011	23,200	-
2010	23,500	-
Growth Rate		-0.4%
Avg Volumes		23,050
Trend Growth Rate		-0.2%

215-0154, Broadway S/O 13th St, 10 year		
Year	Volume	Actuals?
2019	7,030	Estimate
2018	6,890	Actual
2017	7,030	Estimate
2016	6,890	Actual
2015	5,670	Estimate
2014	5,450	-
2013	5,450	-
2012	6,060	-
2011	6,070	-
2010	6,160	-
Growth Rate		1.5%
Avg Volumes		6,270
Trend Growth Rate		0.6%

215-0198, Veterans Pkwy N/O 13th St, 10 year		
Year	Volume	Actuals?
2019	27,700	Estimate
2018	27,500	Actual
2017	26,800	Estimate
2016	26,600	Actual
2015	29,800	Estimate
2014	28,900	-
2013	23,300	-
2012	23,400	-
2011	26,600	-
2010	26,900	-
Growth Rate		0.3%
Avg Volumes		26,750
Trend Growth Rate		1.0%

Avg. Trend Growth Rate, 10 Year	1.0%
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Growth Rate based on data from the US Census Population Estimates

Russell County, AL	
Year	Population
2019	57952
2018	58213
2017	58480
2016	58636
2015	58302
2014	56980
2013	55544
2012	53938
2011	52490
2010	51663
Growth Rate	1.3%
Avg Volumes	56,220
Trendline Growth Rate	1.4%

Muscogee County, GA	
Year	Population
2019	195739
2018	196670
2017	198647
2016	200303
2015	200285
2014	198247
2013	194949
2012	191278
2011	188548
2010	187629
Growth Rate	0.5%
Avg Volumes	195,230
Trendline Growth Rate	0.6%

Phenix City, AL	
Year	Population
2019	36516
2018	36641
2017	36870
2016	36990
2015	36639
2014	35753
2013	34737
2012	33555
2011	32338
2010	31704
Growth Rate	1.6%
Avg Volumes	35,170
Trendline Growth Rate	1.7%

Columbus, GA-AL Metro Area	
Year	Population
2019	319402
2018	307724
2017	309979
2016	312459
2015	312016
2014	308363
2013	303626
2012	297618
2011	292661
2010	290204
Growth Rate	1.1%
Avg Volumes	305,410
Trendline Growth Rate	0.9%

Columbus-Auburn-Opelika, GA-AL CSA	
Year	Population
2019	480554
2018	500837
2017	500471
2016	500424
2015	497077
2014	490244
2013	482176
2012	459770
2011	452005
2010	446913
Growth Rate	0.8%
Avg Volumes	481,050
Trendline Growth Rate	1.2%

Avg. Growth Rate	1.0%
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Avg. Growth Rate without CSA	0.9%
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