Boulder County Housing Authority TOD Site

Traffic Impact Study

Town of Superior, Colorado

Date: *August 18, 2022*

Submitted To:
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BCHA TOD SITE TRAFFIC IMPACT STUDY – SUPERIOR, COLORADO

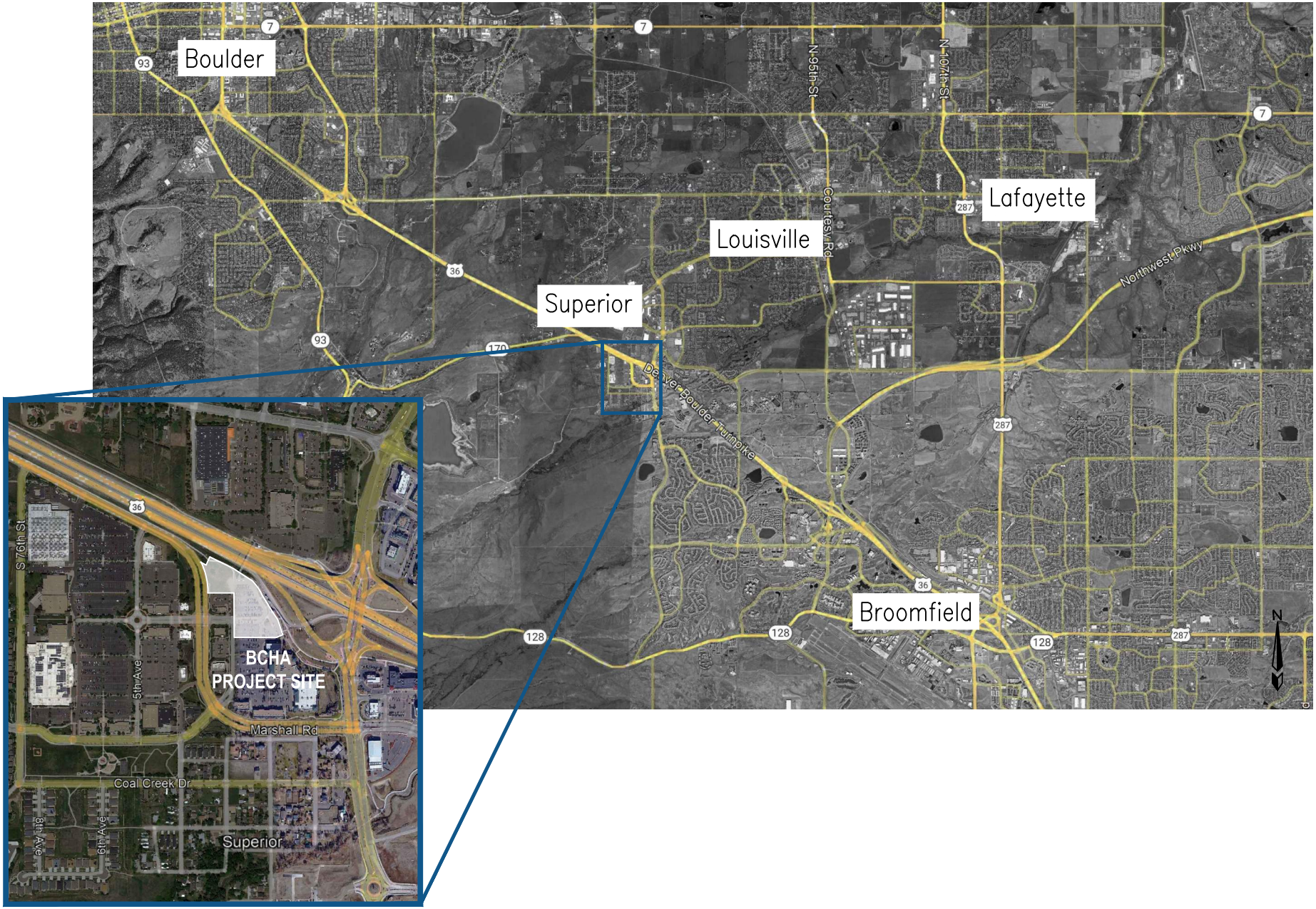
1.0 INTRODUCTION

This traffic impact study has been prepared by the Fox Tuttle Transportation Group for the Boulder County Housing Authority (BCHA) Transit Oriented Development (TOD) project within the Superior Marketplace located in the Town of Superior. The project proposes to develop 269 multifamily, affordable housing units with a 10,768 square foot community-driven and/or non-profit commercial use adjacent to the existing US 36 & McCaslin RTD Station and Park and Ride.

The purpose of this study is to assist in identifying potential traffic impacts within the study area with buildout of this project in the short and long-term scenarios. The traffic study addresses morning and evening peak hour intersection conditions in the study area without and with the project added traffic. The information contained in this study is anticipated to be used by the Town of Superior in identifying any intersection or roadway deficiencies and potential improvements for both the near term (2025) and long-term (2041) future scenarios necessary to service project-added traffic volumes.

2.0 PROJECT DESCRIPTION

The BCHA project proposes to develop 269 multifamily affordable housing units adjacent to the existing US 36 & McCaslin RTD Station and Park and Ride. Access to the BCHA site is proposed via Sycamore Street and Center Drive. A vicinity map is shown on **Figure 1**. The concept site footprint relative to the surrounding uses is shown on **Figure 2**. Existing adjacent land uses include commercial retail, restaurant, and service uses.



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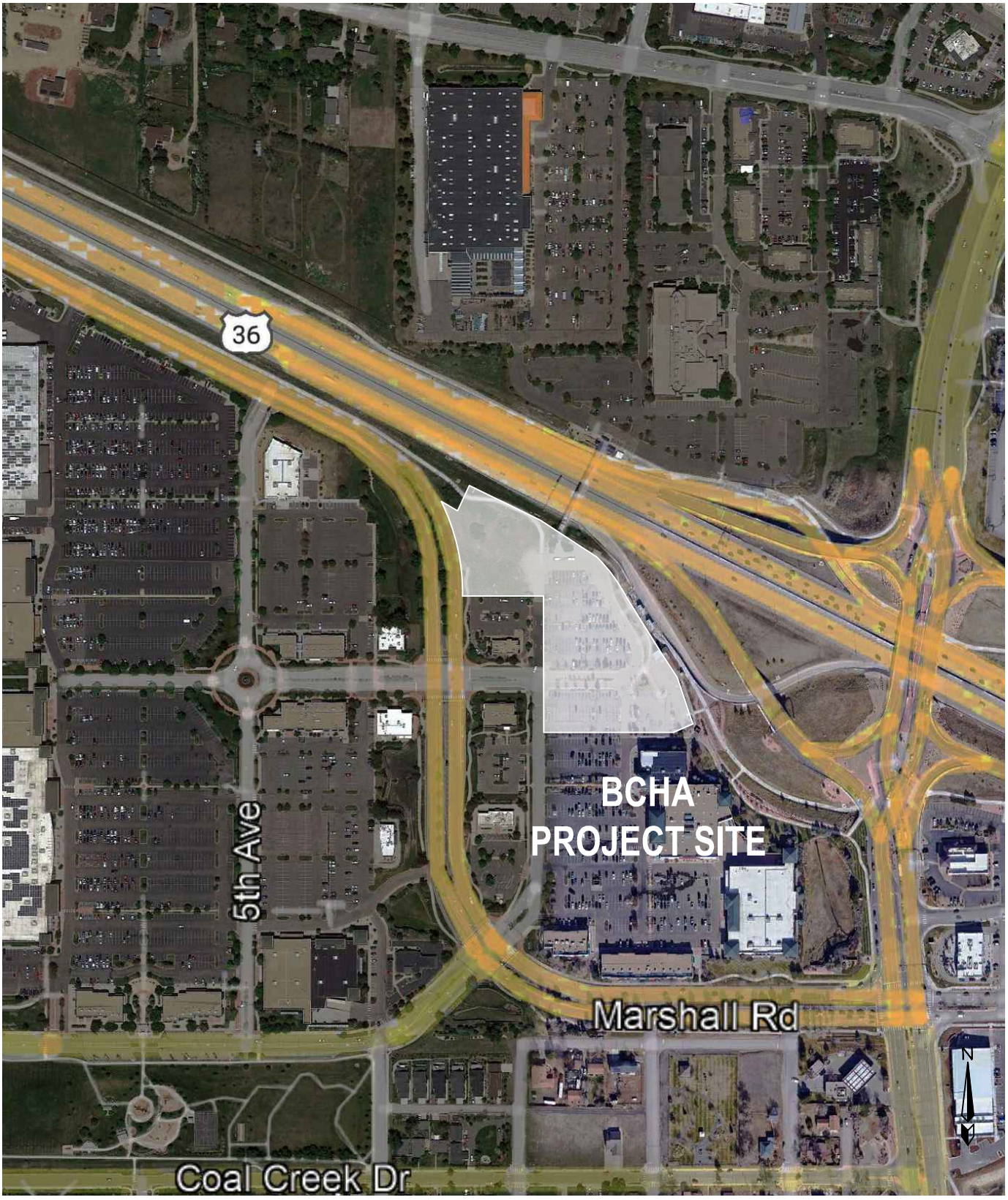
BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

VICINITY MAP

FT Project #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	1



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SITE PLAN

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3.0 EXISTING TRAFFIC CONDTIONS

3.1 Study Area and Circulation Network

The study area boundaries took into consideration the amount of traffic to be generated by the project and potential impact to the existing and proposed roadway network.

The existing study area street network consists of arterial, collector and local streets. The primary public roadways that serve the project site are discussed in the following text. Roadway classifications discussed are consistent with the Transportation Plan 2014 Update[1]. The existing study area roadway network is illustrated on **Figure 1**.

McCaslin Blvd is a four-lane major arterial roadway that provides north-south travel through the study area, linking the communities of Louisville (to the north) and Superior to the south. McCaslin Blvd. provides access to US 36 and Denver-Boulder. Per CDOT TDMS data (for both post-COVID, 2021 and pre-COVID, 2019 conditions), McCaslin Blvd. services approximately 26,000 to 32,000 vehicles per day (vpd) at just north of Marshall Road. The posted speed limit is 35 miles per hour (mph).

Marshall Road is a four-lane minor arterial roadway that provides east-west access from State Highway 93 to the west to just east of McCaslin Blvd where it extends into downtown Superior. Per Northwest Planning Project data (2018) provided by the Town of Superior, Marshall Road services approximately 23,000 vpd just west of McCaslin Blvd. The posted speed limit is 35 mph within the project vicinity. The intersection of Marshall Road with McCaslin Blvd. is controlled with a traffic signal.

Sycamore Street is a two-lane major collector roadway that provides east-west access between Center Street and S. 76th Street. Sycamore Street forms the southern border of the Superior Marketplace commercial district and terminates on the northeast end at the US 36 & McCaslin RTD Bus Rapid Transit (BRT) Station and Park and Ride. The posted speed limit is 30 mph. The intersection of Sycamore Street with Marshall Road is controlled with a traffic signal.

Center Street is a two-lane local roadway that provides access to commercial uses within the Superior Marketplace on both sides of Marshall Road. The posted speed limit is 25 mph. The intersection of Center Street with Marshall Road is controlled with a traffic signal. The intersection of Center Street with Sycamore Street is controlled with an all-way stop.

[1] Transportation Plan 2014 Update. Town of Superior. February 2014.

3.2 Existing Transit and Multimodal Network

There are on-street bike lanes on McCaslin Blvd. and Marshall Road within the study area, with the exception of Marshall Road between Sycamore Street and McCaslin Blvd. The north portion of Sycamore Street, where the US 36 Bikeway routes through this area, is designated with sharrows (shared lane use with autos). Sidewalk connections are generally complete throughout the study area, including segments of attached and detached sidewalks varying from 6' to 10' in width, with the exception of the east side of Sycamore Street north of Marshall Road and adjacent to the RTD Station and parking. The US 36 Bikeway traverses the BCHA site and provides regional bike connectivity from the BRT station to Boulder (to the north) and other US 36 communities (so the south).

Bus routes serves by the US 36 and McCaslin BRT Station include the Flatiron Flyer (Bus Rapid Transit service between Denver, Westminster, Broomfield Louisville, Superior and Boulder) and the Route AB1 bus that provides transit service between Boulder and Denver International Airport. Route 222 provides local transit service on McCaslin Blvd. with bus stops on the McCaslin/US 36 bridge.

3.3 Existing Traffic Volumes

Weekday AM and PM peak period turning-movement was collected by the Town in 2018 for the Northwest Planning Project and utilized for this project. These volumes represent pre-COVID conditions and thus provide a higher/more conservative basis for potential site traffic impacts. These volumes are illustrated on **Figure 3**. The existing intersection geometry and traffic control are also shown on **Figure 3**.

3.4 Existing Intersection Capacity Analysis

In determining the operational characteristics of an intersection, "Levels of Service" (LOS) A through F are applied, with LOS A indicating very good operations and LOS F indicating congested operations. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement. A more detailed discussion of LOS methodology is contained in the Appendix for reference. Criteria contained in the Highway Capacity Manual (HCM)[2] was applied for these analyses in order to determine existing levels of service and 95th-percentile queues during peak hour periods. Existing signal timing and phasing parameters were obtained from the Town of Superior and incorporated into the Synchro models.

[2] Highway Capacity Manual, Sixth Edition, Transportation Research Board, National Research Council, 2016. Synchro v10 software utilized.

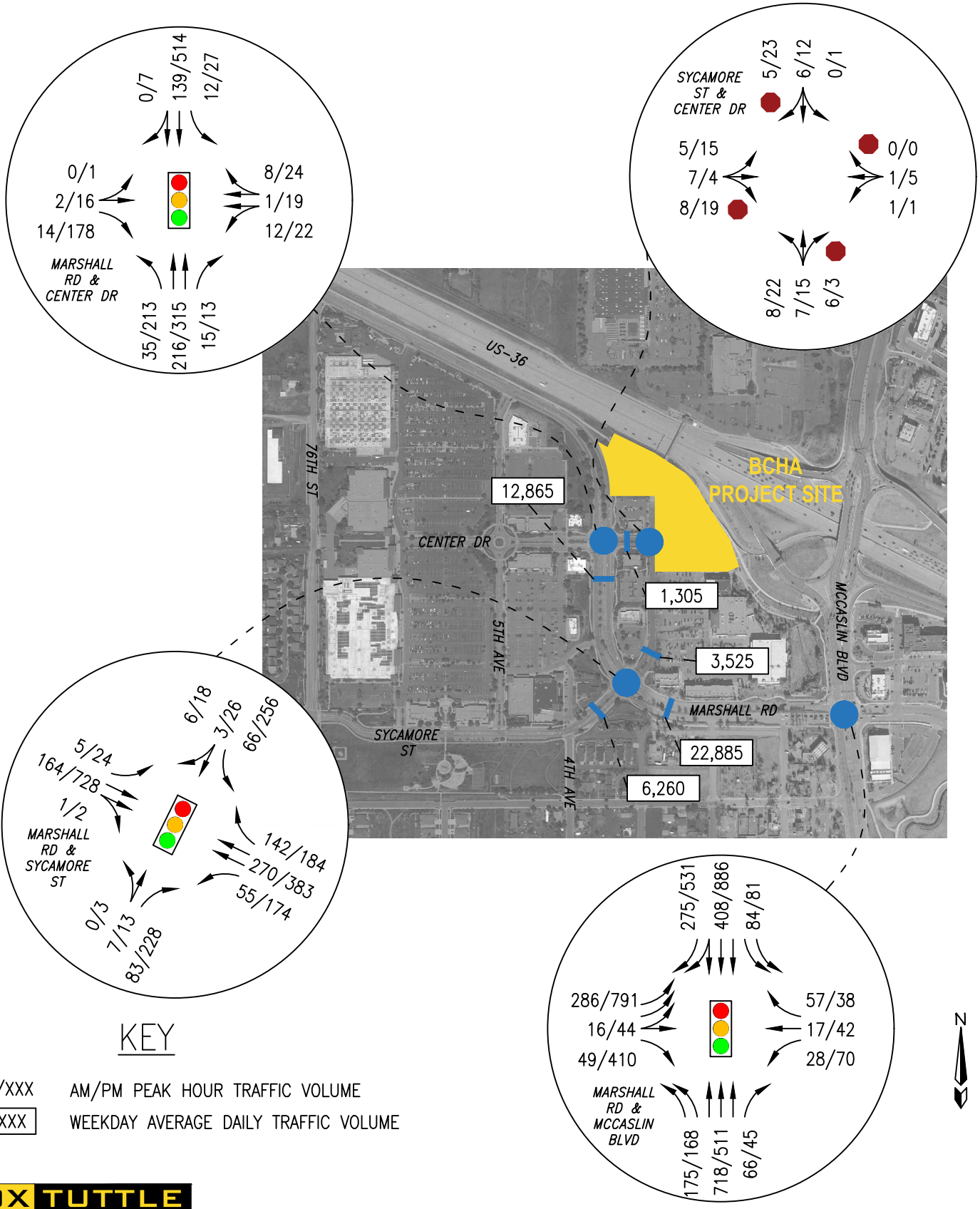
The results of the LOS and queue calculations for the intersections are summarized on **Table 1** and **Table 2**, respectively. The intersection level of service and queue worksheets are attached in the Appendix. The LOS data shows that all study intersections are operating acceptably overall, but with some approaches/movements operating at LOS E or LOS F in at least one peak hour, as follows:

Marshall Road & McCaslin Blvd.

- The eastbound and westbound approaches are operating at LOS E, primarily due to the high volume of eastbound left-turns which are accommodated by a triple left-turn lane which is implemented with a "split phase" operation. Elimination of the split phase could improve the operation of the signal but will require physical widening to eliminate the shared eastbound left-through lane condition. Additionally, the heavy eastbound right-turn movement and poor LOS (LOS F in PM peak) would require widening to implement a "free" right-turn movement to increase capacity.
- The northbound left-turn is operating at LOS E in both peak hours. This is due to the protected-only operation of this left turn that has been implemented to improve safety (particularly with the dual left-turn lane configuration) and this LOS is common where protected-only left-turns phasing is used. The left-turn queues are shown to be contained in the available storage length and mitigation is thus not proposed for this condition.

Marshall Road & Sycamore Street.

- The eastbound right turn movement operates at LOS E during the AM peak and LOS F during the PM peak for existing conditions. The intersection operates at a good LOS and the operations for this one movement can be mitigated by a change in signal timing and phasing to include a right-turn "overlap" signal that would allow the eastbound right-turn movements to occur currently with the northbound left turn phase. This is assumed as a background improvement to be in place for future-year scenarios.



KEY

XXX/XXX — AM/PM PEAK HOUR TRAFFIC VOLUME

XX,XXX — WEEKDAY AVERAGE DAILY TRAFFIC VOLUME

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BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

EXISTING TRAFFIC VOLUMES

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Table 1 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	2021 Existing				2025 Background				2025 Background + Project				2041 Background				2041 Bkgrd + Project			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SIGNAL CONTROL																				
1. Marshall Rd at Center Dr	**6**	**A**	**11**	**B**	**6**	**A**	**11**	**B**	**6**	**A**	**11**	**B**	**9**	**A**	**12**	**B**	**9**	**A**	**12**	**B**
Eastbound Left+Through	52	D	38	D	52	D	38	D	52	D	38	D	51	D	38	D	51	D	38	D
Eastbound Right	53	D	52	D	53	D	52	D	53	D	52	D	52	D	53	D	52	D	53	D
Westbound Left+Through	53	D	39	D	53	D	39	D	52	D	39	D	53	D	41	D	53	D	41	D
Westbound Through+Right	53	D	39	D	53	D	39	D	53	D	39	D	52	D	40	D	52	D	40	D
Northbound Left	3	A	3	A	3	A	3	A	3	A	2	A	3	A	3	A	3	A	3	A
Northbound Through	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Northbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Southbound Left	3	A	2	A	3	A	2	A	3	A	2	A	3	A	2	A	3	A	2	A
Southbound Through+Right	4	A	4	A	4	A	4	A	4	A	4	A	4	A	4	A	4	A	4	A
2. Marshall Rd at Sycamore St	**19**	**B**	**32**	**C**	**22**	**C**	**27**	**C**	**23**	**C**	**23**	**C**	**24**	**C**	**25**	**C**	**24**	**C**	**27**	**C**
Eastbound Left+Through	52	D	44	D	45	D	40	D	45	D	40	D	44	D	40	D	43	D	41	D
Eastbound Right	63	E	>120	F	50	D	46	D	50	D	46	D	50	D	48	D	48	D	46	D
Westbound Left	47	D	35	C	40	D	31	C	39	D	31	C	38	D	31	C	40	D	34	C
Westbound Through+Right	42	D	27	C	36	D	24	C	34	C	23	C	33	C	22	C	33	C	22	C
Northbound Left	5	A	16	B	9	A	33	C	10	A	29	C	10	B	47	D	10	B	44	D
Northbound Through	6	A	17	B	10	A	20	C	11	B	22	C	12	B	24	C	12	B	24	C
Northbound Right	7	A	18	B	10	A	21	C	12	B	24	C	11	B	24	C	12	B	25	C
Southbound Left	7	A	16	B	10	A	19	B	11	B	20	B	11	B	19	B	12	B	21	C
Southbound Through+Right	18	B	17	B	22	C	22	C	23	C	12	B	25	C	12	B	25	C	16	B
3. Marshall Rd at McCaslin Blvd	**31**	**C**	**54**	**D**	**36**	**D**	**61**	**E**	**36**	**D**	**62**	**E**	**36**	**D**	**45**	**D**	**36**	**D**	**46**	**D**
Eastbound Left	56	E	51	D	59	E	51	D	57	E	52	D	58	E	52	D	55	E	52	D
Eastbound Through	56	E	51	D	59	E	51	D	57	E	52	D	46	D	52	D	55	D	45	D
Eastbound Right	51	D	>120	F	44	D	>120	F	42	D	>120	F	0	A	0	A	0	A	0	A
Westbound Left	71	E	69	E	79	E	68	E	77	E	68	E	48	D	34	C	39	D	39	D
Westbound Through	56	E	52	D	51	D	53	D	50	D	54	D	47	D	48	D	47	D	48	D
Westbound Right	53	D	30	C	28	C	32	C	30	C	33	C	14	B	17	B	15	B	17	B
Northbound Left	58	E	59	E	63	E	59	E	61	E	59	E	59	E	68	E	59	E	68	E
Northbound Through	21	C	26	C	25	C	26	C	24	C	26	C	33	C	45	D	32	C	45	D
Northbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
Southbound Left	39	D	47	D	48	D	48	D	50	D	48	D	44	D	61	E	47	D	64	E
Southbound Through	10	B	23	C	17	B	24	C	18	B	24	C	23	C	38	D	25	C	39	D
Southbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A
STOP SIGN CONTROL																				
4. Center Dr at Sycamore St	**7**	**A**	**7**	**A**	**7**	**A**	**7**	**A**	**7**	**A**	**8**	**A**	**7**	**A**	**8**	**A**	**7**	**A**	**8**	**A**
Eastbound Left+Through+Right	7	A	7	A	7	A	7	A	7	A	7	A	7	A	8	A	7	A	8	A
Westbound Left+Through+Right	7	A	7	A	7	A	7	A	8	A	8	A	7	A	8	A	8	A	8	A
Northbound Left+Through+Right	7	A	7	A	7	A	8	A	7	A	8	A	7	A	8	A	7	A	8	A
Southbound Left+Through+Right	7	A	7	A	7	A	7	A	7	A	7	A	7	A	7	A	7	A	8	A

Note: Delay represented in average seconds per vehicle.

Table 2 - Peak Hour 95th-Percentile Queue Summary

Intersection and Lanes Groups	Existing Storage Length	2021 Existing		2025 Background		2025 Background + Project		2041 Background		2041 Bkgrd + Project	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SIGNAL CONTROL											
1. Marshall Rd at Center Dr											
Eastbound Left+Through	-	9'	32'	9'	36'	13'	39'	15'	41'	19'	44'
Eastbound Right	100'	0'	62'	0'	65'	0'	65'	0'	66'	0'	66'
Westbound Left+Through	-	16'	14'	17'	37'	19'	39'	36'	56'	38'	57'
Westbound Through+Right	-	16'	14'	17'	37'	19'	39'	36'	56'	38'	57'
Northbound Left	425'	32'	28'	9'	113'	9'	113'	7'	173'	6'	172'
Northbound Through	-	67'	26'	25'	25'	25'	26'	20'	5'	15'	5'
Northbound Right	175'	4'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Southbound Left	165'	8'	6'	9'	16'	10'	16'	12'	22'	13'	23'
Southbound Through+Right	-	38'	103'	42'	150'	42'	150'	51'	180'	51'	180'
2. Marshall Rd at Sycamore St											
Eastbound Left+Through	-	21'	34'	36'	32'	38'	34'	38'	38'	38'	42'
Eastbound Right	160'	34'	76'	54'	163'	54'	179'	56'	185'	52'	201'
Westbound Left	100'	82'	231'	82'	231'	134'	273'	118'	269'	159'	326'
Westbound Through+Right	-	16'	39'	17'	39'	18'	39'	20'	40'	20'	42'
Northbound Left	400'	19'	146'	55'	323'	55'	322'	38'	397'	42'	367'
Northbound Through	-	48'	170'	97'	203'	97'	204'	81'	201'	89'	207'
Northbound Right	-	2'	70'	35'	82'	39'	92'	6'	16'	0'	17'
Southbound Left	120'	3'	17'	4'	21'	4'	21'	6'	22'	7'	21'
Southbound Through+Right	-	20'	311'	29'	384'	29'	384'	47'	458'	53'	458'
3. Marshall Rd at McCaslin Blvd											
Eastbound Left	385'	138'	336'	182'	393'	196'	420'	186'	352'	201'	363'
Eastbound Through	-	161'	416'	209'	481'	234'	489'	40'	44'	39'	44'
Eastbound Right	265'	1'	131'	0'	185'	0'	184'	12'	450'	13'	413'
Westbound Left	120'	54'	108'	63'	116'	62'	116'	38'	85'	38'	85'
Westbound Through	-	36'	72'	41'	77'	41'	77'	46'	88'	46'	88'
Westbound Right	120'	0'	0'	0'	0'	0'	0'	23'	58'	24'	58'
Northbound Left	180'	109'	106'	126'	115'	126'	118'	140'	155'	142'	155'
Northbound Through	-	167'	138'	213'	152'	204'	152'	347'	464'	342'	464'
Northbound Right	125'	0'	0'	6'	0'	0'	0'	0'	0'	0'	0'
Southbound Left	220'	61'	39'	71'	64'	70'	64'	126'	173'	131'	173'
Southbound Through	-	102'	260'	130'	294'	125'	294'	334'	453'	349'	455'
Southbound Right	200'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
STOP SIGN CONTROL											
4. Center Dr at Sycamore St											
Eastbound Left+Through+Right	-	3'	5'	3'	5'	3'	5'	3'	8'	5'	10'
Westbound Left+Through+Right	-	0'	0'	0'	0'	3'	3'	3'	3'	3'	3'
Northbound Left+Through+Right	-	0'	5'	3'	5'	5'	10'	3'	10'	8'	15'
Southbound Left+Through+Right	-	3'	5'	3'	5'	5'	8'	3'	8'	5'	10'

4.0 FUTURE TRAFFIC CONDITIONS WITHOUT PROJECT

4.1 Annual Growth Factor and Future Volume Methodology

Future traffic growth was based on previous analysis performed by the Town of Superior and LSC Consultants for the Northwest Planning Project. This analysis includes a review of DRCOG regional long-term traffic forecasts and potential build out of the Superior Marketplace and adjacent developments over the short-term and long-term planning horizons. Additionally, 350 new multifamily units were assumed (not related to the BCHA project) within the study area to provide a conservative estimate for potential future background growth.

The BCHA project is anticipated to be fully built and occupied within the next few years. Thus, the Year 2025 planning horizon was assumed for the build-out or "opening day" scenario, with Year 2041 as the long-term planning scenario. Using the above growth assumptions, the projected Year 2025 background traffic volumes are provided on **Figure 4** with the projected Year 2041 background traffic volumes on **Figure 5**.

4.2 Future Year Background (without Project) Capacity Analysis

The level of service criteria discussed Section 3.4 was applied to the study area intersections to determine baseline operations for the Year 2025 and Year 2041 background traffic scenarios. The results of the LOS calculations are summarized on **Table 1** on the previous page. The intersection level of service and queue worksheets are attached in the Appendix. The eastbound right-turn overlap phase at the Marshall Road & Sycamore Street intersection was assumed to be in place for future background scenarios.

The data on **Table 1** shows that all study intersections are projected to operate acceptably overall and for individual movements (LOS D or better) in both peak hours in the Year 2025 background scenario, with the following exceptions:

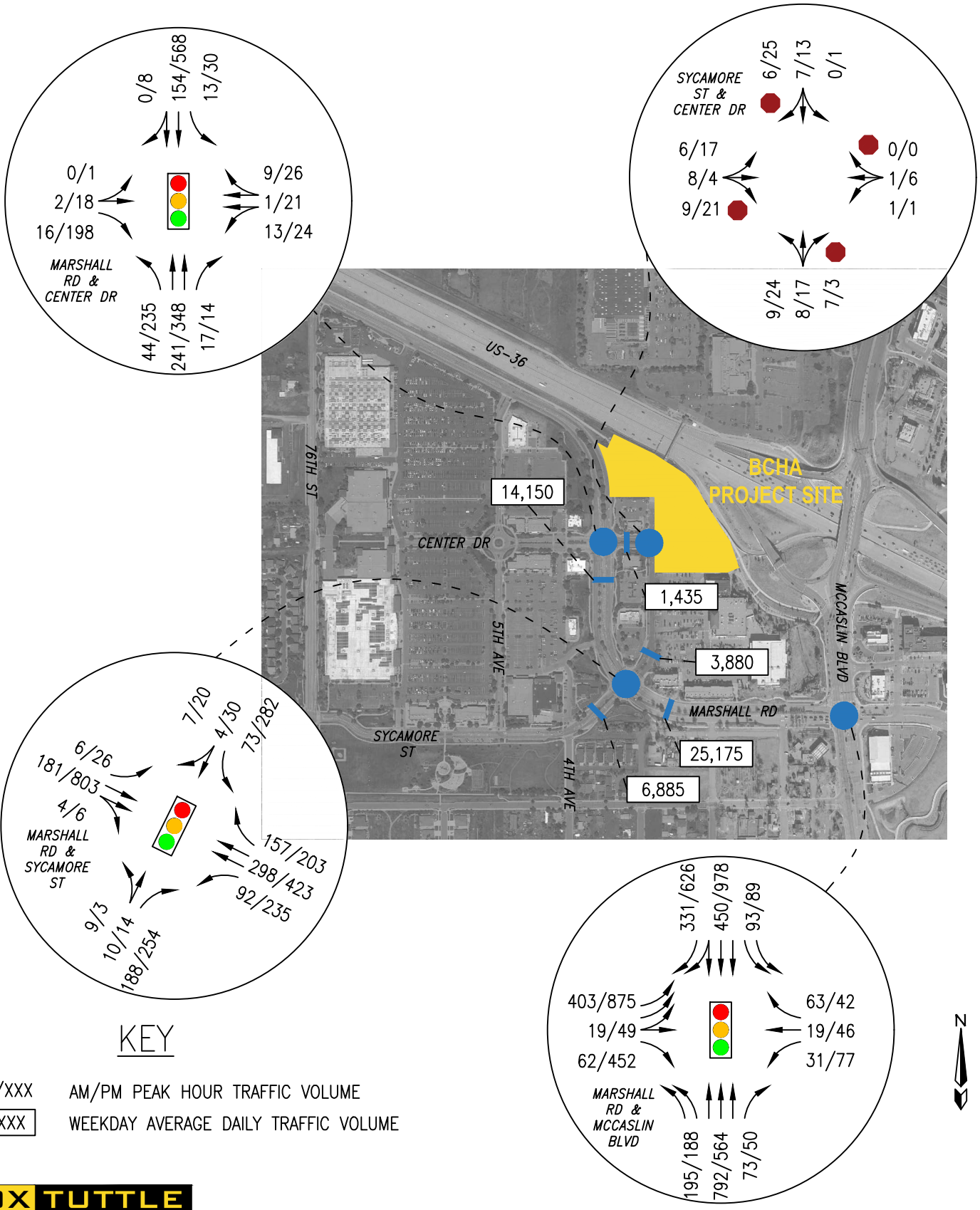
Marshall Road & McCaslin Blvd.

- The intersection is anticipated to operate at LOS E in the PM peak hour, and with the same approaches and movements operating at LOS E as noted for the existing conditions in Section 3.4.
- As noted in Section 3.4, the eastbound and westbound approaches are operating at LOS E, primarily due to the high volume of eastbound left-turns which are accommodated by a triple left-turn lane which is implemented with a "split phase" operation. Elimination of the split phase could improve the operation of the signal but will require physical widening to eliminate the shared eastbound left-through lane condition. Additionally, the heavy eastbound right-turn movement and poor

LOS (LOS F in PM peak) would require widening to implement a "free" right-turn movement to increase capacity.

- The northbound left-turn is projected to continue to operate at LOS E in both peak hours. This is due to the protected-only operation of this left turn that has been implemented to improve safety (particularly with the dual left-turn lane configuration) and this LOS is common where protected-only left-turns phasing is used. The left-turn queues are shown to be contained in the available storage length and mitigation is thus not needed for this condition.

For the Year 2041 background scenario, improvements to the Marshall Road & McCaslin Blvd. intersection to mitigate the existing capacity limitations were assumed to be in place. The data on **Table 1** shows that all study intersections are projected to operate acceptably overall with these improvements in place. No other mitigation measures have been identified to adequately service projected traffic volumes in the background growth scenarios.



KEY

XXX/XXX — AM/PM PEAK HOUR TRAFFIC VOLUME

XX,XXX — WEEKDAY AVERAGE DAILY TRAFFIC VOLUME

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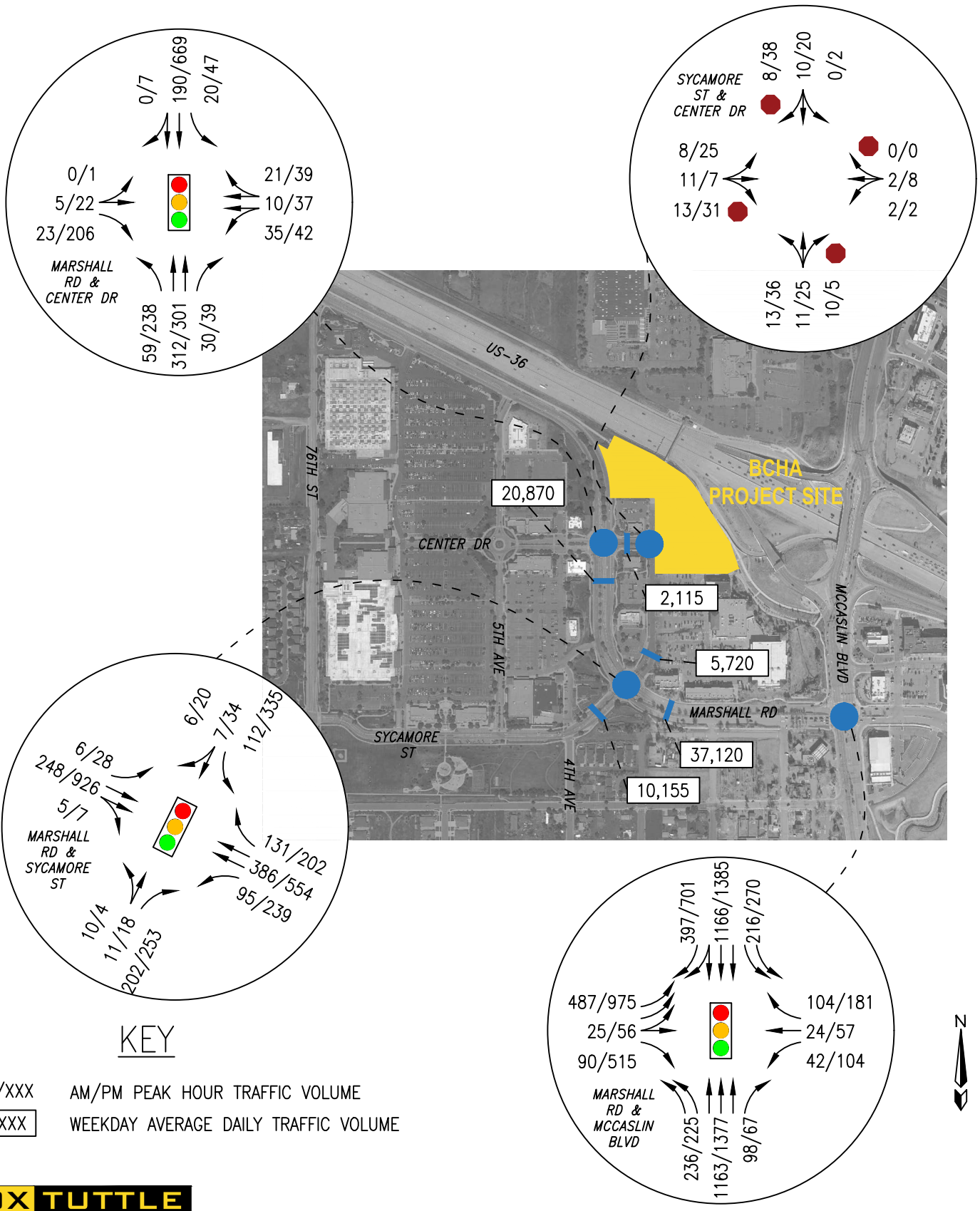
YEAR 2025 BACKGROUND TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	4



KEY

XXX/XXX AM/PM PEAK HOUR TRAFFIC VOLUME

XX,XXX WEEKDAY AVERAGE DAILY TRAFFIC VOLUME

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BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

YEAR 2041 BACKGROUND TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	5

5.0 PROPOSED DEVELOPMENT TRAFFIC

5.1 Trip Generation

The BCHA site proposes to develop three buildings on the site with a total of 269 residential units, with partial below grade parking. The development will also include up to 10,768 square feet of community-driven and/or non-profit commercial use. This commercial space is anticipated as an ancillary use to service residents and potentially transit customers using the RTD station, but not as a unique destination that is anticipated generate unique vehicular trips (as a traditional retail/commercial space might). However, to provide a conservatively high estimate of potential site traffic impacts, this commercial use was included in the trip generation estimates.

The BCHA site proposes affordable housing units, which have been shown to generate less automobile trips than typical residential sites. In order to estimate the anticipated volume of residential vehicle trips generated by the development by the project, trip rates contained in Table 5 of the Los Angeles Department of Transportation (LADOT) Impact Study Guidelines were applied. The LADOT developed these rates based on field studies of affordable housing sites through the city. This information is also attached in the Appendix, for reference. For the commercial space, trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual[3] were utilized.

The BCHA Transit Oriented Development (TOD) site will benefit from the proximity to the US 36 and McCaslin RTD Station, access to the US 36 Bikeway, and close access to retail, restaurants, and other uses within the Superior Marketplace. As such, reductions were applied to the vehicular trip generation estimates to account for transit, biking and walking trips. A 30% non-auto use reduction was applied for the BCHA site for transit and multimodal trip usage given the proximity to the RTD station, US 36 bikeway and adjacent retail/commercial uses within walking and biking distance.

The resulting vehicular trip estimates for the project are summarized on **Table 2** on the following page. As shown, the project is anticipated to generate the following vehicular trips at buildout and full occupancy:

- 1,180 daily trips, 112 AM peak hour trips, 114 PM peak hour trips

[3] Trip Generation 11th Edition, Institute of Transportation Engineers, 2021.

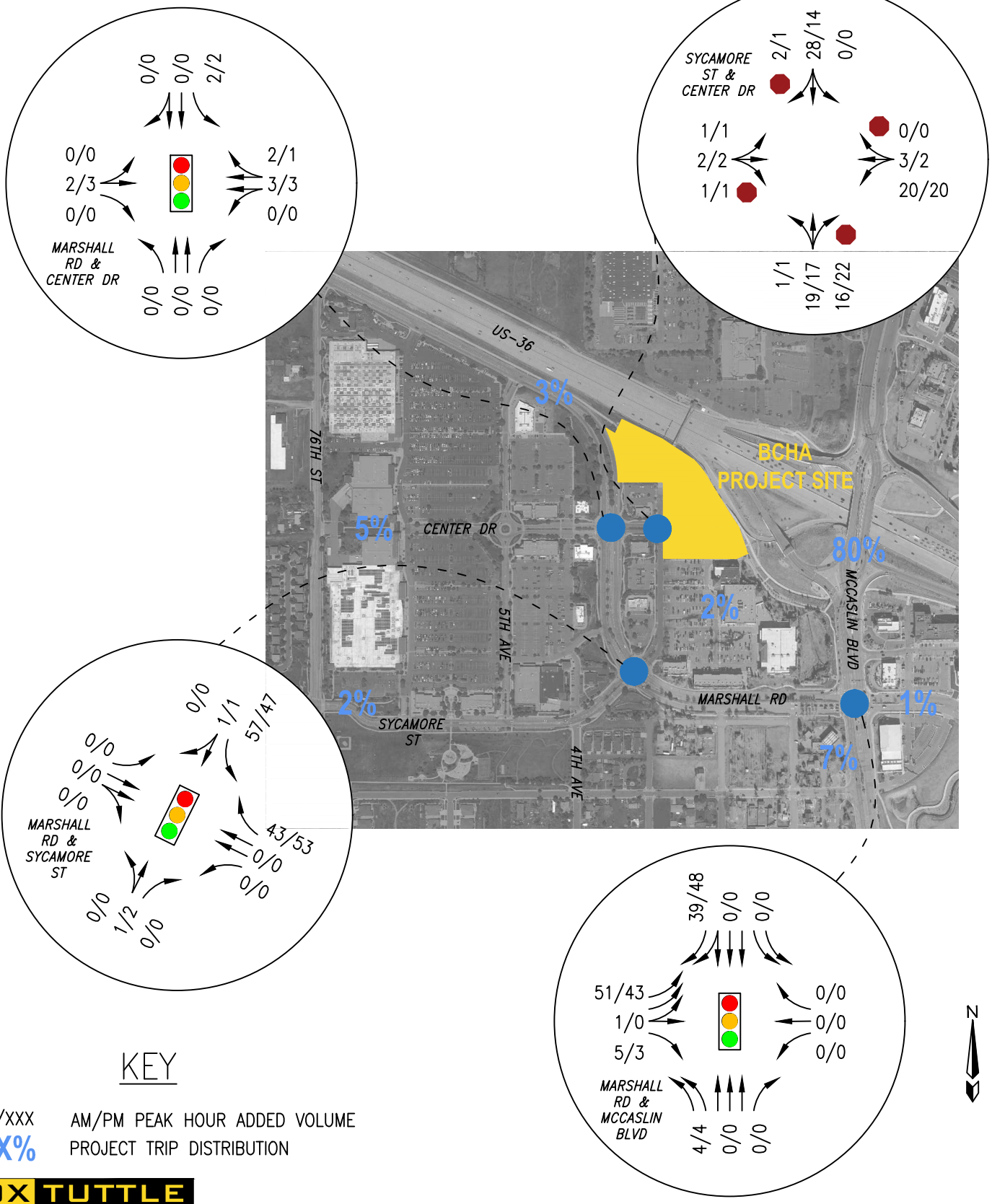
5.2 Trip Distribution and Assignment

The estimated project build-out vehicle trips were distributed onto the surrounding roadway and intersection based on existing traffic patterns in the study area determined with the existing count data, as well as based on regional origins and destinations for residential trips (i.e.: employment centers, population centers, etc.). Using this data, it is estimated that roughly 80% of the project traffic will be oriented to/from US 36 via McCaslin Road.

The anticipated project-added volumes at build-out, along with the trip distribution assumptions, is provided on **Figure 6**.

Table 2 - Trip Generation Summary

	Land Use	Size	Unit	Non-Auto Factor [1]	Average Daily Trips		AM Peak Hour Trips				PM Peak Hour Trips			
					Rate	Total	Rate	Total	In	Out	Rate	Total	In	Out
BCHA Site														
1	COLA - Affordable Housing - Family	269	DU	0.70	4.08	768	0.50	94	38	56	0.34	64	35	29
2	Commercial (ITE #822, Retail <40k)	10.8	TSF	0.70	54.45	412	2.36	18	11	7	6.59	50	25	25
	BHCA Site - Total New Trips:					*1,180*		*112*	*49*	*63*		*114*	*60*	*54*



KEY

XXX/XXX AM/PM PEAK HOUR ADDED VOLUME

XX% PROJECT TRIP DISTRIBUTION

FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

BCHA SITE-GENERATED TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	6

6.0 FUTURE TRAFFIC CONDITIONS WITH PROJECT

This analysis has been conducted in order to determine impacts associated with full development and occupancy of the project in the short-term (build-out) and long-term scenarios.

6.1 Intersection Capacity Analysis for Short-Term + Project Scenario

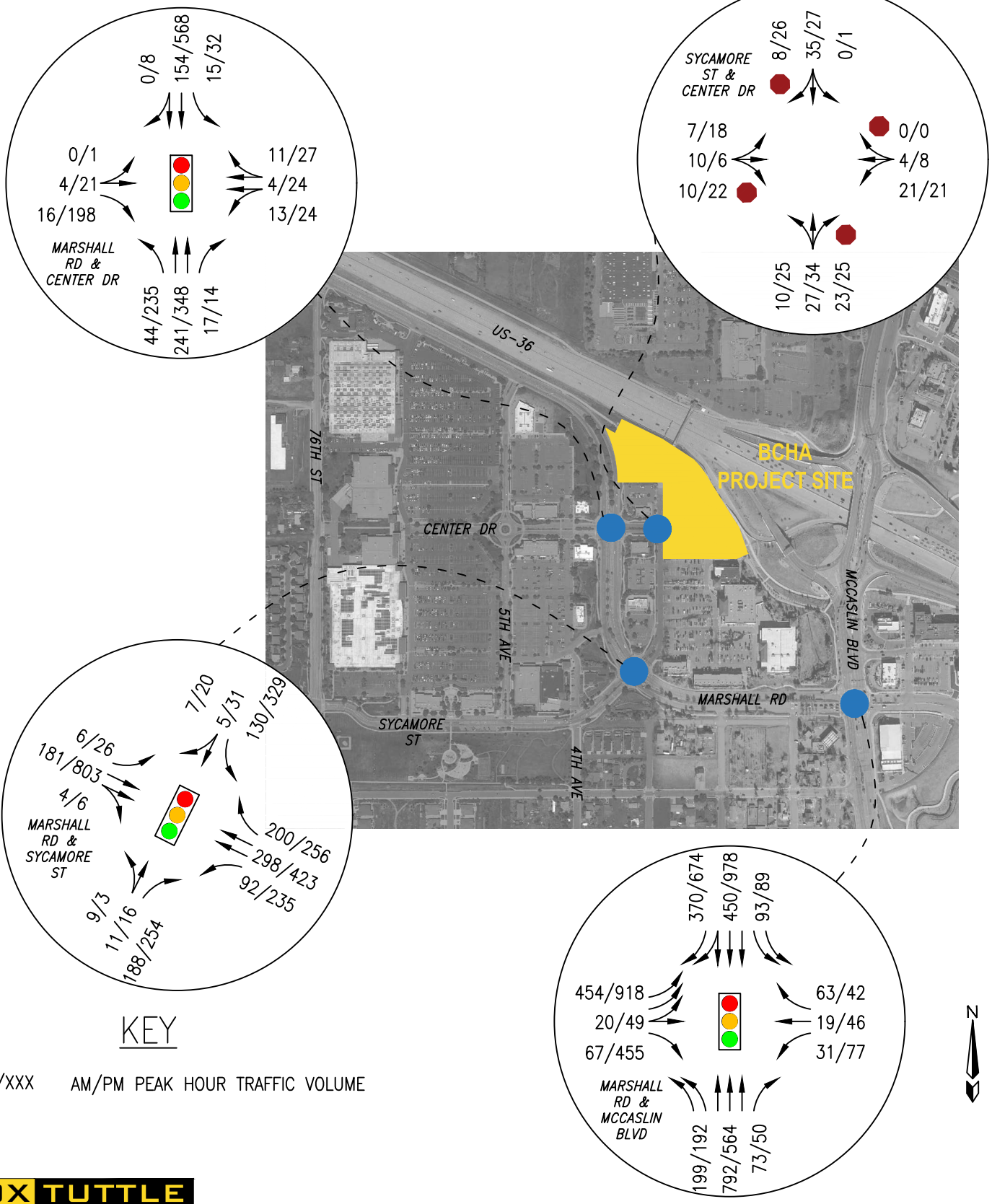
The site-generated traffic volumes were added to the Year 2025 background traffic volumes to analyze potential site impacts in the short-term, build-out scenario. The Year 2025 total traffic volumes are illustrated on **Figure 7**. The level of service criteria discussed in prior sections was applied to the study area intersections to determine impacts with the addition of project build-out traffic volumes in the short-term. The results of the LOS calculations for the intersections are summarized for each scenario in **Table 1** and the queue calculations in **Table 2**. The intersection level of service and queue worksheets are attached in the Appendix.

The data contained in **Table 1** illustrates that the study area intersections and proposed accesses will operate similarly to the Year 2025 background conditions, with only marginal increases in delay values and no changes in LOS letter grades for any intersections or movements.

6.2 Intersection Capacity Analysis for Long-Term + Project Scenario

The site-generated traffic volumes were added to the Year 2041 background traffic volumes to analyze potential site impacts in the long-term, build-out scenario. The Year 2041 total traffic volumes are illustrated on **Figure 8**. The level of service criteria discussed in prior sections was applied to the study area intersections to determine impacts with the addition of project build-out traffic volumes in the long-term. The results of the LOS calculations for the intersections are summarized for each scenario in **Table 1** and the queue calculations in **Table 2**. The intersection level of service and queue worksheets are attached in the Appendix.

As discussed in Section 4.2, for the Year 2041 scenario, improvements to the Marshall Road & McCaslin Blvd. intersection to mitigate the existing capacity limitations were assumed to be in place as a background traffic need (independent of the project). The data on **Table 1** shows that with these improvements, all study intersections are projected to operate acceptably overall through the Year 2041 scenario with full buildout of both residential sites.



KEY

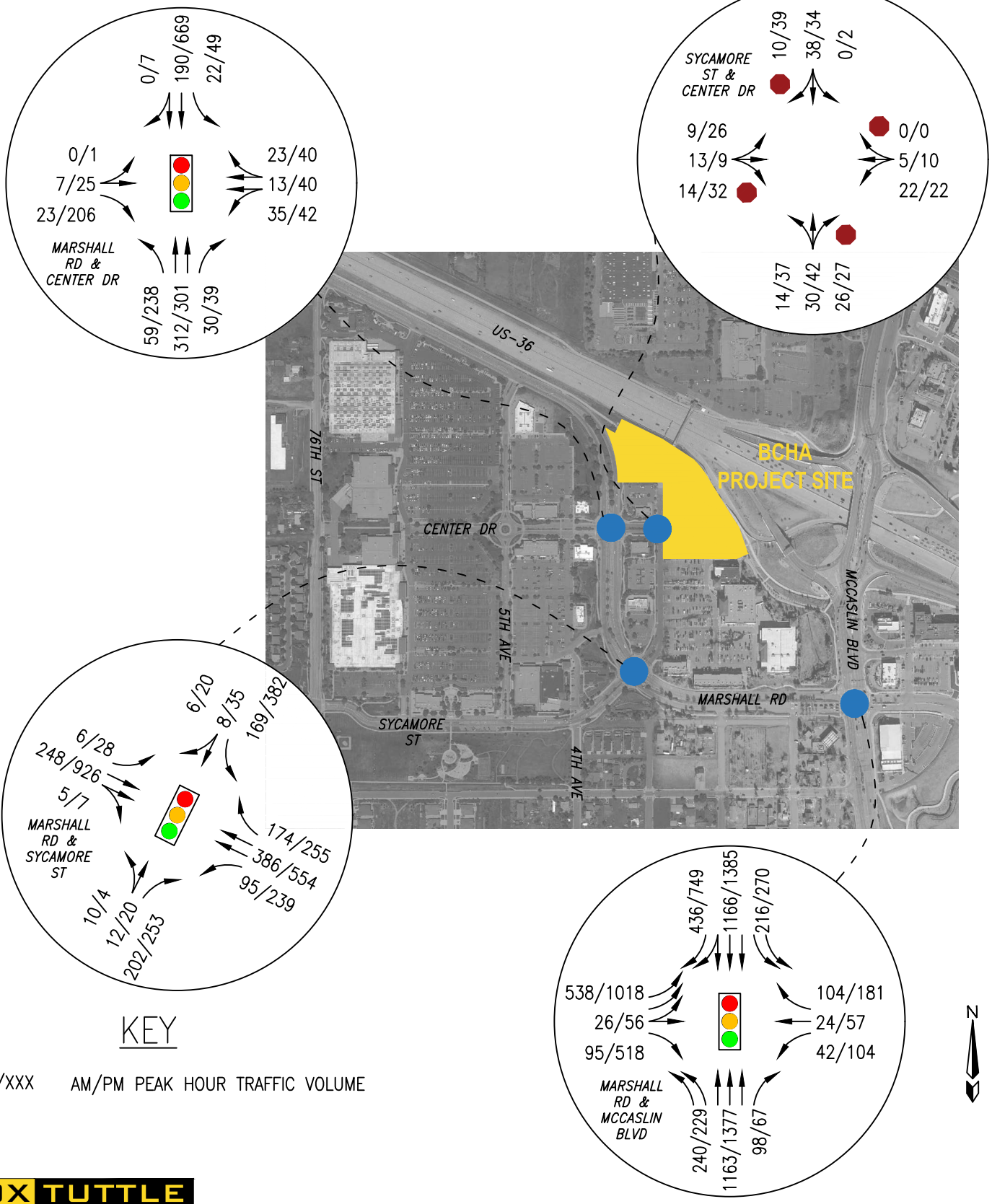
XXX/XXX AM/PM PEAK HOUR TRAFFIC VOLUME

FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

YEAR 2025 + PROJECT TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	7



KEY

XXX/XXX AM/PM PEAK HOUR TRAFFIC VOLUME

FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

YEAR 2041 + PROJECT TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	8/12/22	Drawn by	MAR	Figure #	8

6.3 Site Access and Circulation

The project proposes the following access points:

- Access to under-structure parking for the north buildings along the north side of the RTD station loop driveway and via Sycamore Street.
- Access to the south building under-structure parking along both the RTD station loop driveway and along Sycamore Street just south of Center Street

The proposed access plan provides sufficient distribution of trips to and from the site and ease of access onto the adjacent roadway and intersection network. No new auxiliary turn lanes are needed at either site access intersections or study area intersections to support the project-added traffic volumes. As site plans are refined for each site, multimodal access details should be provided, showing sidewalk connections to adjacent/existing multimodal facilities.

6.4 Site Parking

The BCHA site proposes to maintain 294 RTD parking spaces (matching existing). A 0.3 parking space per unit ratio is proposed for the residential uses and 1.0 parking spaces per 1,000 SF of commercial gross floor area. The residential parking provision of 0.3 spaces per unit represents a variance from Town standards on the basis of studies which have shown a reduction in parking demand for affordable housing units and near transit. Potential parking strategies to provide any additional parking could utilize mixed-use shared parking agreements with adjacent commercial uses, as peak residential and commercial parking demand often varies by time of day (peak parking demand for residential during nights and peak parking demand for commercial during the day).

7.0 CONCLUSIONS

The Boulder County Housing Authority (BCHA) proposes to develop 269 multifamily affordable housing units and up to 10,768 SF of community-driven and/or non-profit commercial use adjacent to the existing US 36 & McCaslin RTD Station and Park and Ride. Access to the BCHA site is proposed via Sycamore Street and Center Drive. The purpose of this study is to assist in identifying potential traffic impacts within the study area with buildout of this project in the short and long-term scenarios. The traffic study addresses weekday morning and evening peak hour intersection conditions in the study area without and with the project added traffic.

The project is anticipated to generate a total of approximately 1,180 daily, 112 AM peak hour and 114 PM peak hour trips at full build-out and occupancy. It was determined that the project-added traffic can be accommodated on the existing and future roadway and intersection network with minimal impacts. It is anticipated that improvements to the Marshall Road & McCaslin Blvd. to remove the existing split-phase operational of the traffic signal will be implemented by the Town by the long-term planning horizon. No deficiencies or improvements were identified as necessary to support these residential projects, as proposed.

The analysis shows that the residential use will generate primarily outbound trips in the AM peak hour, while many adjacent commercials uses in the area are not open or generating significant traffic. In the PM peak hour, the residential trips will largely be inbound. The addition of residential use in the Superior Marketplace is anticipated to increase use of transit via the US 36 and McCaslin RTD station as well as help to create a mixed-use environment that will encourage short, non-auto trips between the residential and adjacent commercial uses.

APPENDIX

Affordable Housing Trip Rates (COLA)
Level of Service Definitions
Intersection Capacity Worksheets

Affordable Housing Trip Rates (COLA)

  - » Provide continuous paved sidewalks / walkways with adequate lighting from all buildings in the Project to nearby transit services and stops. This may include mid-block paseos.
  - » Implement transit shelter enhancements.
- If the Development Project is not within ¼-mile walking distance of a transit station or a RapidBus stop, the Project may still qualify for up to 10% trip generation adjustment. To be eligible for this adjustment, the Project should include design features that promote alternative travel modes and provide certain amenities to tenants and employees. Features and amenities that may qualify a Project for this adjustment include the following:
  - » An on-site transit information kiosk and/or on-site transit pass sales;
  - » On-site facilities such as ATM machines, cafeteria, convenience shopping, showers, and changing rooms;
  - » Pricing for single-occupancy auto parking;
  - » Publicly accessible car share or bike share station, contingent on LADOT approval;
  - » Bicycle racks or amenities for people traveling by bicycle;
  - » Provision of on-site concierge service to facilitate use of transit, taxis, or private shuttles by employees/ residents;
  - » Provision of shuttle service for employees and/or customers.

  Transit trip adjustment will not be automatically granted to Development Projects located in an area with infrequent transit service. However, all reasonable efforts by the developer to promote the use of public transit or walking will be considered for transit adjustments on a case-by-case basis.

  NOTE: Refer to ***Section 4.2*** of these TIS Guidelines for transit-related impact mitigation measures.

- Affordable Housing Projects

  Residential or mixed-use developments that include Affordable Housing Units [as defined in LAMC 12.22-A.25 (b)] are eligible to use the trip generation rates presented in **Table 5**, which are based on the total number and type of dwelling units reserved as affordable. These trip generation rates are based on vehicle trip count data collected at affordable housing sites in the City of Los Angeles in 2016. These trip generation rates for Affordable Housing units are not subject to any of the aforementioned adjustments in this Section.

Table 5: Trip Generation Rates for Affordable Housing Projects

Affordable Housing Type	***Daily Rate*** *(Trips per DU)*	***Average AM Peak Hr Rate*** *(Trips per DU)*	***% AM Trips In***	***% AM Trips Out***	***Average PM Peak Hr Rate*** *(Trips per DU)*	***% PM Trips In***	***% PM Trips Out***
Family	4.08	0.50	40%	60%	0.34	55%	45%
Seniors	1.72	0.12	38%	62%	0.15	52%	48%
Permanent Supportive Housing / Special Needs	1.27	0.12	44%	56%	0.12	59%	41%

Family affordable housing offers affordable dwelling units designed for households with children. Senior affordable

housing provides affordable dwelling units designed for mature residents. Permanent supportive housing provides long-term housing with supportive services designed to enable homeless persons and individuals/families at risk of homelessness to ensure that they remain housed and live as independently as possible.

3.3C TRAFFIC COUNTS

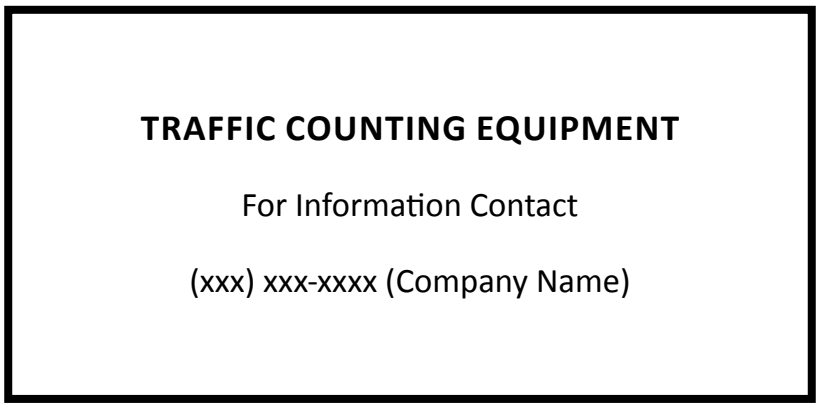
The LADOT traffic count database should be searched for any recent traffic counts at the Study intersections. The TIS should not use any traffic counts that are more than two years old. If recent LADOT traffic counts are not available, then new traffic counts shall be collected by a qualified data collection firm. Turning movement data at the study intersections should be collected in 15-minute intervals during the hours of 7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 6:00 p.m., unless LADOT specifies other hours (e.g., for a signal warrant determination or weekend analysis). Unless otherwise required, all traffic counts should generally be conducted when local schools or colleges are in session, on days of good weather, on Tuesdays through Thursdays during non-Summer months, and should avoid being taken on weeks with a holiday. Relative to the proposed Project description, the TIS may be required to collect traffic data on and evaluate special circumstances, such as:

- Summer weekend activity in recreational areas
- Holidays or special events
- Alternative Project scenarios if required by another City Department or adjacent jurisdiction

Traffic counts should include vehicle classifications, pedestrian volume counts, and bicycle counts. If traffic count data is collected utilizing video technology equipment that is left unattended in the public right-of-way, the video equipment should be clearly labeled as traffic counting equipment and should include the name and contact information of the company conducting the count, as shown in **Figure 2**. All traffic data collected should be summarized and presented in the standard LADOT format depicting turning movement volumes for all required modes as shown in **Attachments G and H**, and submitted in digital and hard copy formats.

The TIS should include map(s) showing the "existing" (specify base year) traffic volumes for both the a.m. and p.m. peak hours at the study intersections and the average daily traffic (ADT) on any analyzed street segments. Additionally, the TIS should include map(s) showing future traffic volumes with ambient growth without Project at the Study intersections and street segments. This map should specify the future year used in the impact analysis and should be based on the expected date of project buildout. The future year identified in this step shall remain consistent for all other analyses and maps used to illustrate future traffic projections.

Figure 2: Sample Label for Traffic Counting Equipment



Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

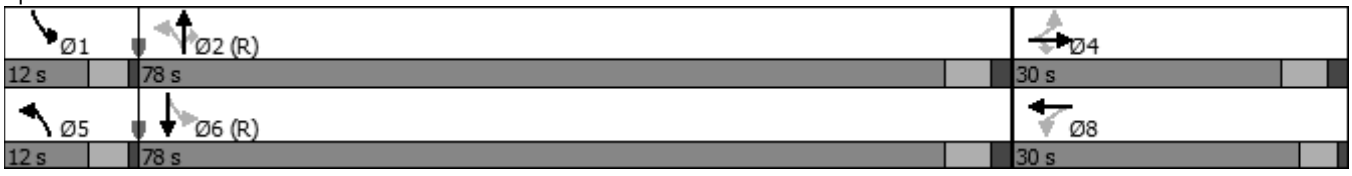
(a) Delay ranges based on Highway Capacity Manual (6th Edition, 2016) criteria.

Intersection Capacity Worksheets

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	14	12	1	35	216	15	12	139
Future Volume (vph)	2	14	12	1	35	216	15	12	139
Turn Type	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	4			8	5	2		1	6
Permitted Phases		4	8		2		2	6	
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.0	24.0		25.5	84.0	79.8	79.8	82.4	77.3
Actuated g/C Ratio	0.20	0.20		0.21	0.70	0.66	0.66	0.69	0.64
v/c Ratio	0.01	0.04		0.04	0.04	0.10	0.02	0.02	0.07
Control Delay	38.5	0.2		27.0	10.2	13.8	3.0	5.2	8.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	0.2		27.0	10.2	13.8	3.0	5.2	8.9
LOS	D	A		C	B	B	A	A	A
Approach Delay	4.7			27.0		12.7			8.6
Approach LOS	A			C		B			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.10	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	2	15	23	38	235	16	13	151
v/c Ratio	0.01	0.04	0.04	0.04	0.10	0.02	0.02	0.07
Control Delay	38.5	0.2	27.0	10.2	13.8	3.0	5.2	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	0.2	27.0	10.2	13.8	3.0	5.2	8.9
Queue Length 50th (ft)	1	0	4	15	48	0	3	23
Queue Length 95th (ft)	9	0	16	32	67	4	8	38
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	623	875	2352	1045	818	2280
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.04	0.04	0.04	0.10	0.02	0.02	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	14	12	1	8	35	216	15	12	139	0
Future Volume (veh/h)	0	2	14	12	1	8	35	216	15	12	139	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2	15	13	1	9	38	235	16	13	151	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	124	105	143	9	95	1047	2777	1235	949	2723	0
Arrive On Green	0.00	0.07	0.07	0.07	0.07	0.07	0.06	1.00	1.00	0.01	0.77	0.00
Sat Flow, veh/h	0	1870	1579	1289	135	1437	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	2	15	14	0	9	38	235	16	13	151	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1425	0	1437	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.1	1.1	0.9	0.0	0.7	0.5	0.0	0.0	0.2	1.2	0.0
Cycle Q Clear(g_c), s	0.0	0.1	1.1	1.1	0.0	0.7	0.5	0.0	0.0	0.2	1.2	0.0
Prop In Lane	0.00		1.00	0.93		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	124	105	152	0	95	1047	2777	1235	949	2723	0
V/C Ratio(X)	0.00	0.02	0.14	0.09	0.00	0.09	0.04	0.08	0.01	0.01	0.06	0.00
Avail Cap(c_a), veh/h	0	374	316	359	0	305	1105	2777	1235	1034	2723	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.8	52.8	0.0	52.6	2.5	0.0	0.0	2.9	3.4	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.6	0.3	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.4	0.4	0.0	0.3	0.1	0.0	0.0	0.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	52.4	53.4	53.0	0.0	53.0	2.5	0.1	0.0	2.9	3.5	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		17			23			289			164	
Approach Delay, s/veh		53.3			53.0			0.4			3.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	99.8		14.0	8.1	97.9		14.0				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.2	2.0		3.1	2.5	3.2		3.1				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	1.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		5.7
HCM 6th LOS		A

Notes

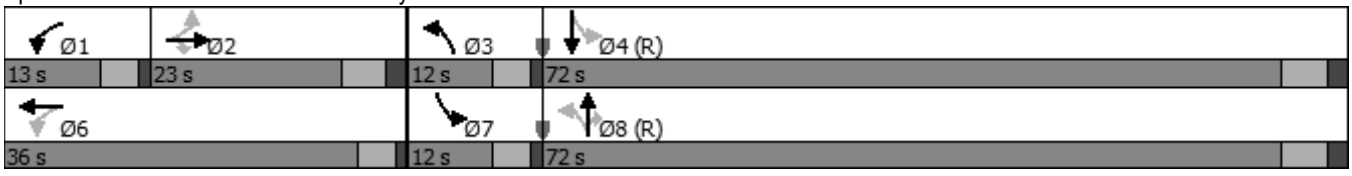
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	7	83	66	3	55	270	142	5	164
Future Volume (vph)	7	83	66	3	55	270	142	5	164
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	2		1	6	3	8		7	4
Permitted Phases		2	6		8		8	4	
Detector Phase	2	2	1	6	3	8	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	23.0	23.0	13.0	36.0	12.0	72.0	72.0	12.0	72.0
Total Split (%)	19.2%	19.2%	10.8%	30.0%	10.0%	60.0%	60.0%	10.0%	60.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	8.1	8.1	20.0	20.0	90.5	87.5	87.5	86.5	80.5
Actuated g/C Ratio	0.07	0.07	0.17	0.17	0.75	0.73	0.73	0.72	0.67
v/c Ratio	0.06	0.44	0.34	0.04	0.07	0.11	0.13	0.01	0.08
Control Delay	50.1	12.4	44.8	23.6	3.4	4.3	0.5	3.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	12.4	44.8	23.6	3.4	4.3	0.5	3.6	4.8
LOS	D	B	D	C	A	A	A	A	A
Approach Delay	15.5			42.2		3.1			4.8
Approach LOS	B			D		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 50.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	90	72	10	60	293	154	5	179
v/c Ratio	0.06	0.44	0.34	0.04	0.07	0.11	0.13	0.01	0.08
Control Delay	50.1	12.4	44.8	23.6	3.4	4.3	0.5	3.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	12.4	44.8	23.6	3.4	4.3	0.5	3.6	4.8
Queue Length 50th (ft)	6	0	49	2	6	17	0	0	11
Queue Length 95th (ft)	21	34	82	16	19	48	2	3	20
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	263	314	218	442	891	2579	1167	824	2372
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.29	0.33	0.02	0.07	0.11	0.13	0.01	0.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	7	83	66	3	6	55	270	142	5	164	1
Future Volume (veh/h)	0	7	83	66	3	6	55	270	142	5	164	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	8	90	72	3	7	60	293	154	5	178	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	143	120	240	81	188	877	2466	1098	697	2407	14
Arrive On Green	0.00	0.08	0.08	0.05	0.16	0.16	0.04	0.69	0.69	0.00	0.22	0.22
Sat Flow, veh/h	0	1870	1573	1781	497	1160	1781	3554	1583	1781	3623	20
Grp Volume(v), veh/h	0	8	90	72	0	10	60	293	154	5	87	92
Grp Sat Flow(s),veh/h/ln	0	1870	1573	1781	0	1657	1781	1777	1583	1781	1777	1867
Q Serve(g_s), s	0.0	0.5	6.7	4.3	0.0	0.6	1.2	3.3	4.0	0.1	4.7	4.7
Cycle Q Clear(g_c), s	0.0	0.5	6.7	4.3	0.0	0.6	1.2	3.3	4.0	0.1	4.7	4.7
Prop In Lane	0.00		1.00	1.00		0.70	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	143	120	240	0	269	877	2466	1098	697	1180	1240
V/C Ratio(X)	0.00	0.06	0.75	0.30	0.00	0.04	0.07	0.12	0.14	0.01	0.07	0.07
Avail Cap(c_a), veh/h	0	265	223	280	0	435	924	2466	1098	797	1180	1240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	51.4	54.3	46.1	0.0	42.4	5.4	6.1	6.2	6.6	17.6	17.6
Incr Delay (d2), s/veh	0.0	0.2	8.9	0.7	0.0	0.1	0.0	0.1	0.3	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	2.9	2.0	0.0	0.3	0.4	1.2	1.3	0.0	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.6	63.2	46.8	0.0	42.4	5.4	6.2	6.5	6.6	17.7	17.7
LnGrp LOS	A	D	E	D	A	D	A	A	A	A	B	B
Approach Vol, veh/h		98			82			507			184	
Approach Delay, s/veh		62.2			46.3			6.2			17.4	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	10.3	15.2	8.8	85.7		25.5	5.3	89.3				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	8.5	17.0	7.5	66.0		* 32	7.5	66.0				
Max Q Clear Time (g_c+I1), s	6.3	8.7	3.2	6.7		2.6	2.1	6.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.0		0.0	0.0	2.5				

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

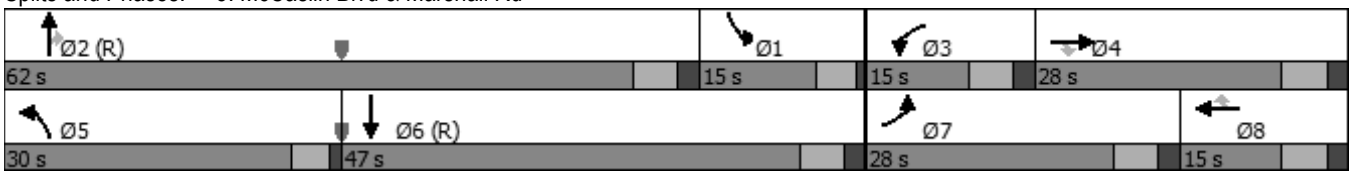
User approved pedestrian interval to be less than phase max green.

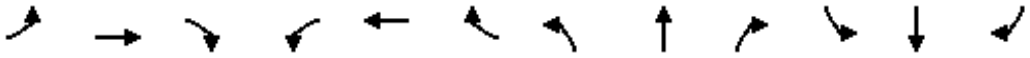
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	16	49	28	17	57	175	718	66	84	408	275
Future Volume (vph)	286	16	49	28	17	57	175	718	66	84	408	275
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	28.0	28.0	28.0	15.0	15.0	15.0	30.0	62.0	62.0	15.0	47.0	
Total Split (%)	23.3%	23.3%	23.3%	12.5%	12.5%	12.5%	25.0%	51.7%	51.7%	12.5%	39.2%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	18.9	18.9	28.4	7.4	14.4	14.4	12.0	56.0	56.0	10.5	54.5	120.0
Actuated g/C Ratio	0.16	0.16	0.24	0.06	0.12	0.12	0.10	0.47	0.47	0.09	0.45	1.00
v/c Ratio	0.43	0.43	0.10	0.28	0.08	0.16	0.56	0.33	0.09	0.30	0.19	0.19
Control Delay	54.3	58.1	0.8	59.7	47.2	0.9	57.4	20.6	0.2	54.2	20.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	58.1	0.8	59.7	47.2	0.9	57.4	20.6	0.2	54.2	20.2	0.3
LOS	D	E	A	E	D	A	E	C	A	D	C	A
Approach Delay		48.0			24.5			25.9			16.8	
Approach LOS		D			C			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	218	110	53	30	18	62	190	780	72	91	443	299
v/c Ratio	0.43	0.43	0.10	0.28	0.08	0.16	0.56	0.33	0.09	0.30	0.19	0.19
Control Delay	54.3	58.1	0.8	59.7	47.2	0.9	57.4	20.6	0.2	54.2	20.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	58.1	0.8	59.7	47.2	0.9	57.4	20.6	0.2	54.2	20.2	0.3
Queue Length 50th (ft)	96	96	0	23	12	0	73	135	0	34	73	0
Queue Length 95th (ft)	138	161	1	54	36	0	109	167	0	61	102	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	671	256	505	132	234	399	729	2373	831	300	2310	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.43	0.10	0.23	0.08	0.16	0.26	0.33	0.09	0.30	0.19	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	16	49	28	17	57	175	718	66	84	408	275
Future Volume (veh/h)	286	16	49	28	17	57	175	718	66	84	408	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	323	0	53	30	18	62	190	780	0	91	443	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	447	0	164	47	88	73	259	2383		701	3100	
Arrive On Green	0.08	0.00	0.10	0.03	0.05	0.05	0.07	0.47	0.00	0.20	0.61	0.00
Sat Flow, veh/h	5344	0	1571	1781	1870	1555	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	323	0	53	30	18	62	190	780	0	91	443	0
Grp Sat Flow(s),veh/h/ln	1781	0	1571	1781	1870	1555	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	7.1	0.0	3.8	2.0	1.1	3.2	6.5	11.5	0.0	2.6	4.5	0.0
Cycle Q Clear(g_c), s	7.1	0.0	3.8	2.0	1.1	3.2	6.5	11.5	0.0	2.6	4.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	447	0	164	47	88	73	259	2383		701	3100	
V/C Ratio(X)	0.72	0.00	0.32	0.64	0.20	0.85	0.73	0.33		0.13	0.14	
Avail Cap(c_a), veh/h	980	0	288	134	140	117	734	2383		701	3100	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.6	0.0	49.8	57.9	55.0	26.4	54.3	20.1	0.0	39.2	10.1	0.0
Incr Delay (d2), s/veh	2.2	0.0	1.1	13.6	1.1	26.5	4.0	0.4	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.5	1.1	0.5	2.4	3.0	4.6	0.0	1.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	50.9	71.4	56.2	52.9	58.3	20.5	0.0	39.2	10.2	0.0
LnGrp LOS	E	A	D	E	E	D	E	C		D	B	
Approach Vol, veh/h		376			110			970	A		534	A
Approach Delay, s/veh		55.1			58.5			27.9			15.2	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.3	62.0	9.2	18.5	13.5	78.8	16.0	11.6
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.5	* 56	9.0	22.0	25.5	41.0	22.0	9.0
Max Q Clear Time (g_c+I1), s	4.6	13.5	4.0	5.8	8.5	6.5	9.1	5.2
Green Ext Time (p_c), s	0.1	6.5	0.0	0.1	0.5	3.3	1.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	7	8	1	1	0	8	7	6	0	6	5
Future Vol, veh/h	5	7	8	1	1	0	8	7	6	0	6	5
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.69	0.69	0.69
Heavy Vehicles, %	10	10	10	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	8	10	4	4	0	9	8	7	0	9	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

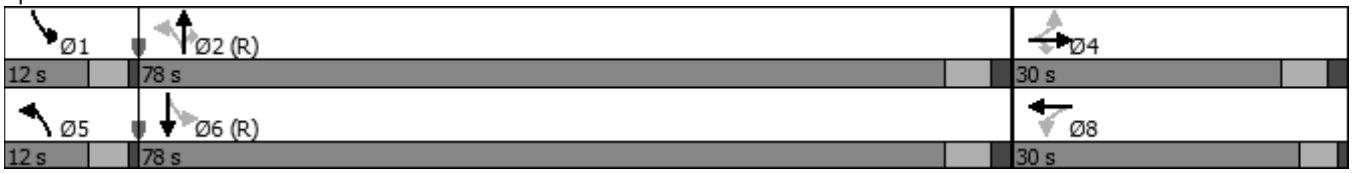
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.1	7	6.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	25%	50%	0%
Vol Thru, %	33%	35%	50%	55%
Vol Right, %	29%	40%	0%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	20	2	11
LT Vol	8	5	1	0
Through Vol	7	7	1	6
RT Vol	6	8	0	5
Lane Flow Rate	24	24	8	16
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.026	0.009	0.016
Departure Headway (Hd)	3.871	3.954	4.086	3.7
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	927	907	877	968
Service Time	1.887	1.97	2.104	1.718
HCM Lane V/C Ratio	0.026	0.026	0.009	0.017
HCM Control Delay	7	7.1	7.1	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	16	178	22	19	213	315	13	27	514
Future Volume (vph)	1	16	178	22	19	213	315	13	27	514
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		24.0	24.0		25.5	83.5	77.5	77.5	79.6	72.0
Actuated g/C Ratio		0.20	0.20		0.21	0.70	0.65	0.65	0.66	0.60
v/c Ratio		0.05	0.41		0.11	0.40	0.15	0.01	0.04	0.27
Control Delay		39.4	8.5		26.1	8.5	5.0	0.0	5.3	11.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.4	8.5		26.1	8.5	5.0	0.0	5.3	11.8
LOS		D	A		C	A	A	A	A	B
Approach Delay		11.1			26.1		6.3			11.5
Approach LOS		B			C		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 10.0	Intersection LOS: B
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	193	71	232	342	14	29	567
v/c Ratio	0.05	0.41	0.11	0.40	0.15	0.01	0.04	0.27
Control Delay	39.4	8.5	26.1	8.5	5.0	0.0	5.3	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	8.5	26.1	8.5	5.0	0.0	5.3	11.8
Queue Length 50th (ft)	11	0	14	28	26	0	6	103
Queue Length 95th (ft)	32	62	35	86	32	0	14	134
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	369	471	642	578	2285	1011	728	2119
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.41	0.11	0.40	0.15	0.01	0.04	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	16	178	22	19	24	213	315	13	27	514	7
Future Volume (veh/h)	1	16	178	22	19	24	213	315	13	27	514	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	17	193	24	21	26	232	342	14	29	559	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	264	226	161	130	171	670	2463	1093	779	2361	34
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.12	1.00	1.00	0.03	0.66	0.66
Sat Flow, veh/h	24	1838	1578	785	903	1192	1781	3554	1577	1781	3586	51
Grp Volume(v), veh/h	18	0	193	39	0	32	232	342	14	29	277	290
Grp Sat Flow(s),veh/h/ln	1861	0	1578	1398	0	1482	1781	1777	1577	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.3	1.3	0.0	2.3	5.3	0.0	0.0	0.6	7.6	7.6
Cycle Q Clear(g_c), s	1.0	0.0	14.3	2.5	0.0	2.3	5.3	0.0	0.0	0.6	7.6	7.6
Prop In Lane	0.06		1.00	0.62		0.80	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	299	0	226	249	0	213	670	2463	1093	779	1170	1225
V/C Ratio(X)	0.06	0.00	0.85	0.16	0.00	0.15	0.35	0.14	0.01	0.04	0.24	0.24
Avail Cap(c_a), veh/h	402	0	316	343	0	315	673	2463	1093	844	1170	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	0.0	50.2	45.0	0.0	45.0	5.1	0.0	0.0	6.1	8.3	8.3
Incr Delay (d2), s/veh	0.1	0.0	14.7	0.3	0.0	0.3	0.3	0.1	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	6.6	1.0	0.0	0.9	1.5	0.0	0.0	0.2	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	64.8	45.3	0.0	45.3	5.4	0.1	0.0	6.1	8.8	8.8
LnGrp LOS	D	A	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		211			71			588			596	
Approach Delay, s/veh		63.1			45.3			2.2			8.6	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	89.2		23.2	11.8	85.0		23.2				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.6	2.0		16.3	7.3	9.6		4.5				
Green Ext Time (p_c), s	0.0	2.4		0.4	0.0	3.7		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		15.7	
HCM 6th LOS		B	

Notes

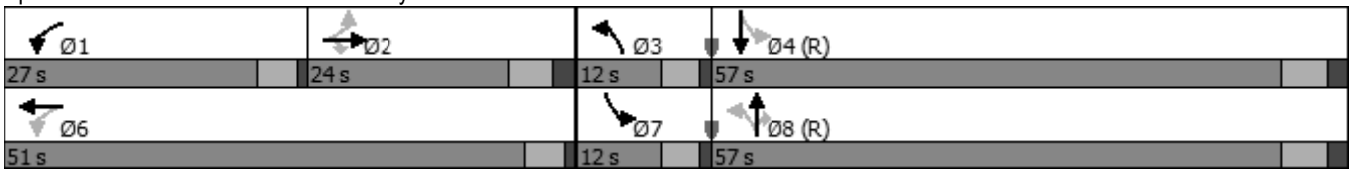
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	3	13	228	256	26	174	383	184	24	728
Future Volume (vph)	3	13	228	256	26	174	383	184	24	728
Turn Type	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2		1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	2	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	9.5	9.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	24.0	24.0	24.0	27.0	51.0	12.0	57.0	57.0	12.0	57.0
Total Split (%)	20.0%	20.0%	20.0%	22.5%	42.5%	10.0%	47.5%	47.5%	10.0%	47.5%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		9.1	9.1	35.3	35.3	74.8	67.5	67.5	68.1	60.3
Actuated g/C Ratio		0.08	0.08	0.29	0.29	0.62	0.56	0.56	0.57	0.50
v/c Ratio		0.13	0.72	0.66	0.09	0.47	0.21	0.21	0.05	0.45
Control Delay		50.9	18.3	42.4	18.3	21.3	22.0	9.5	9.2	15.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		50.9	18.3	42.4	18.3	21.3	22.0	9.5	9.2	15.9
LOS		D	B	D	B	C	C	A	A	B
Approach Delay		20.4			38.8		18.7			15.7
Approach LOS		C			D		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	17	248	278	48	189	416	200	26	793
v/c Ratio	0.13	0.72	0.66	0.09	0.47	0.21	0.21	0.05	0.45
Control Delay	50.9	18.3	42.4	18.3	21.3	22.0	9.5	9.2	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	18.3	42.4	18.3	21.3	22.0	9.5	9.2	15.9
Queue Length 50th (ft)	13	1	182	16	78	105	1	5	108
Queue Length 95th (ft)	34	76	231	39	146	170	70	m17	311
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	262	443	435	684	404	1989	952	595	1777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.56	0.64	0.07	0.47	0.21	0.21	0.04	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	13	228	256	26	18	174	383	184	24	728	2
Future Volume (veh/h)	3	13	228	256	26	18	174	383	184	24	728	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	14	248	278	28	20	189	416	200	26	791	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	244	235	480	339	242	410	1791	794	456	1693	4
Arrive On Green	0.15	0.15	0.15	0.15	0.33	0.33	0.06	0.50	0.50	0.03	0.62	0.62
Sat Flow, veh/h	177	1625	1569	1781	1013	723	1781	3554	1576	1781	3636	9
Grp Volume(v), veh/h	17	0	248	278	0	48	189	416	200	26	387	406
Grp Sat Flow(s),veh/h/ln	1801	0	1569	1781	0	1736	1781	1777	1576	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	18.0	15.2	0.0	2.3	6.5	7.9	8.7	0.9	14.0	14.0
Cycle Q Clear(g_c), s	0.9	0.0	18.0	15.2	0.0	2.3	6.5	7.9	8.7	0.9	14.0	14.0
Prop In Lane	0.18		1.00	1.00		0.42	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	305	0	235	480	0	581	410	1791	794	456	827	870
V/C Ratio(X)	0.06	0.00	1.05	0.58	0.00	0.08	0.46	0.23	0.25	0.06	0.47	0.47
Avail Cap(c_a), veh/h	305	0	235	552	0	673	410	1791	794	524	827	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	0.96	0.96	0.96
Uniform Delay (d), s/veh	43.7	0.0	51.0	33.6	0.0	27.3	15.4	16.7	16.9	15.8	14.9	14.9
Incr Delay (d2), s/veh	0.1	0.0	73.5	1.1	0.0	0.1	0.7	0.3	0.7	0.0	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	11.8	6.7	0.0	1.0	2.6	3.2	3.2	0.4	5.2	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	0.0	124.5	34.7	0.0	27.4	16.1	17.0	17.6	15.8	16.7	16.6
LnGrp LOS	D	A	F	C	A	C	B	B	B	B	B	B
Approach Vol, veh/h		265			326			805			819	
Approach Delay, s/veh		119.3			33.6			16.9			16.6	
Approach LOS		F			C			B			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	22.1	24.0	12.0	61.9		46.1	7.4	66.5				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	22.5	18.0	7.5	51.0		* 47	7.5	51.0				
Max Q Clear Time (g_c+I1), s	17.2	20.0	8.5	16.0		4.3	2.9	10.7				
Green Ext Time (p_c), s	0.4	0.0	0.0	5.4		0.2	0.0	3.6				

Intersection Summary		
HCM 6th Ctrl Delay		31.5
HCM 6th LOS		C

Notes

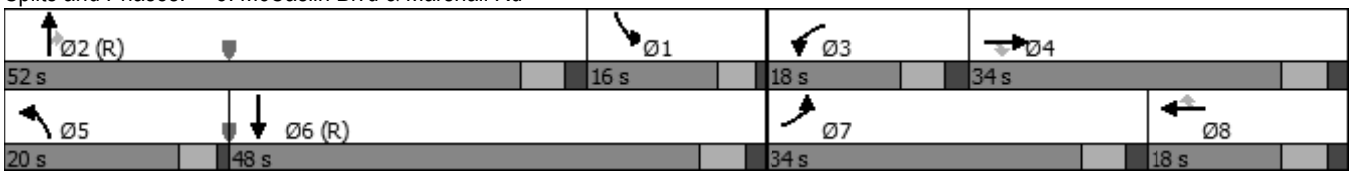
User approved pedestrian interval to be less than phase max green.

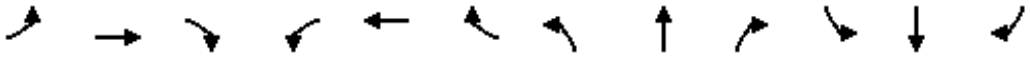
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	791	44	410	70	42	38	168	511	45	81	886	531
Future Volume (vph)	791	44	410	70	42	38	168	511	45	81	886	531
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	34.0	34.0	34.0	18.0	18.0	18.0	20.0	52.0	52.0	16.0	48.0	
Total Split (%)	28.3%	28.3%	28.3%	15.0%	15.0%	15.0%	16.7%	43.3%	43.3%	13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	30.9	30.9	32.5	9.9	11.4	11.4	11.7	46.0	46.0	11.5	45.8	120.0
Actuated g/C Ratio	0.26	0.26	0.27	0.08	0.10	0.10	0.10	0.38	0.38	0.10	0.38	1.00
v/c Ratio	0.73	0.73	0.65	0.52	0.26	0.11	0.55	0.28	0.07	0.27	0.50	0.36
Control Delay	57.9	63.7	11.8	65.0	53.7	0.7	57.5	26.1	0.2	52.7	29.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	63.7	11.8	65.0	53.7	0.7	57.5	26.1	0.2	52.7	29.7	0.7
LOS	E	E	B	E	D	A	E	C	A	D	C	A
Approach Delay		44.0			45.6			31.8			20.7	
Approach LOS		D			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 32.0	Intersection LOS: C
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	602	306	446	76	46	41	183	555	49	88	963	577
v/c Ratio	0.73	0.73	0.65	0.52	0.26	0.11	0.55	0.28	0.07	0.27	0.50	0.36
Control Delay	57.9	63.7	11.8	65.0	53.7	0.7	57.5	26.1	0.2	52.7	29.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	63.7	11.8	65.0	53.7	0.7	57.5	26.1	0.2	52.7	29.7	0.7
Queue Length 50th (ft)	235	239	28	57	33	0	70	107	0	32	206	0
Queue Length 95th (ft)	336	#416	131	108	72	0	106	138	0	59	260	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	848	419	683	177	196	371	443	1949	716	328	1940	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.73	0.65	0.43	0.23	0.11	0.41	0.28	0.07	0.27	0.50	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	791	44	410	70	42	38	168	511	45	81	886	531
Future Volume (veh/h)	791	44	410	70	42	38	168	511	45	81	886	531
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	894	0	446	76	46	41	183	555	0	88	963	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1047	0	367	97	172	143	246	1957		445	2316	
Arrive On Green	0.20	0.00	0.23	0.05	0.09	0.09	0.07	0.38	0.00	0.13	0.45	0.00
Sat Flow, veh/h	5344	0	1575	1781	1870	1559	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	894	0	446	76	46	41	183	555	0	88	963	0
Grp Sat Flow(s),veh/h/ln	1781	0	1575	1781	1870	1559	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	19.4	0.0	28.0	5.1	2.7	2.2	6.2	9.0	0.0	2.7	15.2	0.0
Cycle Q Clear(g_c), s	19.4	0.0	28.0	5.1	2.7	2.2	6.2	9.0	0.0	2.7	15.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1047	0	367	97	172	143	246	1957		445	2316	
V/C Ratio(X)	0.85	0.00	1.21	0.78	0.27	0.29	0.74	0.28		0.20	0.42	
Avail Cap(c_a), veh/h	1247	0	367	178	187	156	446	1957		445	2316	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.00	0.82	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.6	0.0	46.0	56.0	50.7	28.4	54.7	25.6	0.0	46.7	22.1	0.0
Incr Delay (d2), s/veh	4.3	0.0	115.2	12.7	0.8	1.1	4.4	0.4	0.0	0.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	22.5	2.6	1.3	1.2	2.9	3.7	0.0	1.2	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	161.2	68.7	51.5	29.5	59.1	26.0	0.0	46.9	22.6	0.0
LnGrp LOS	D	A	F	E	D	C	E	C		D	C	
Approach Vol, veh/h		1340			163			738	A		1051	A
Approach Delay, s/veh		87.6			54.0			34.2			24.7	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	52.0	12.5	34.0	13.0	60.4	29.5	17.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	11.5	* 46	12.0	28.0	15.5	42.0	28.0	12.0
Max Q Clear Time (g_c+I1), s	4.7	11.0	7.1	30.0	8.2	17.2	21.4	4.7
Green Ext Time (p_c), s	0.1	4.3	0.1	0.0	0.3	7.5	2.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	53.9
HCM 6th LOS	D

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	4	19	1	5	0	22	15	3	1	12	23
Future Vol, veh/h	15	4	19	1	5	0	22	15	3	1	12	23
Peak Hour Factor	0.73	0.73	0.73	0.50	0.50	0.50	0.67	0.67	0.67	0.75	0.75	0.75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	21	5	26	2	10	0	33	22	4	1	16	31
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

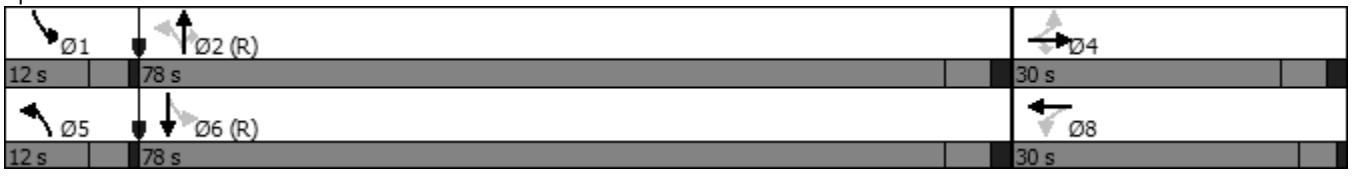
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.4	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	39%	17%	3%
Vol Thru, %	38%	11%	83%	33%
Vol Right, %	7%	50%	0%	64%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	38	6	36
LT Vol	22	15	1	1
Through Vol	15	4	5	12
RT Vol	3	19	0	23
Lane Flow Rate	60	52	12	48
Geometry Grp	1	1	1	1
Degree of Util (X)	0.068	0.056	0.014	0.049
Departure Headway (Hd)	4.113	3.875	4.16	3.678
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	870	920	855	969
Service Time	2.144	1.918	2.21	1.717
HCM Lane V/C Ratio	0.069	0.057	0.014	0.05
HCM Control Delay	7.4	7.2	7.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	16	13	1	44	241	17	13	154
Future Volume (vph)	2	16	13	1	44	241	17	13	154
Turn Type	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	4			8	5	2		1	6
Permitted Phases		4	8		2		2	6	
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.0	24.0		25.5	84.1	79.8	79.8	81.2	75.1
Actuated g/C Ratio	0.20	0.20		0.21	0.70	0.66	0.66	0.68	0.63
v/c Ratio	0.01	0.05		0.04	0.06	0.11	0.02	0.02	0.08
Control Delay	38.5	0.2		26.7	3.3	5.0	0.1	5.2	9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	0.2		26.7	3.3	5.0	0.1	5.2	9.6
LOS	D	A		C	A	A	A	A	A
Approach Delay	4.3			26.7		4.5			9.2
Approach LOS	A			C		A			A

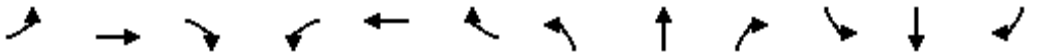
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.11	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	2	17	25	48	262	18	14	167
v/c Ratio	0.01	0.05	0.04	0.06	0.11	0.02	0.02	0.08
Control Delay	38.5	0.2	26.7	3.3	5.0	0.1	5.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	0.2	26.7	3.3	5.0	0.1	5.2	9.6
Queue Length 50th (ft)	1	0	4	4	14	0	3	26
Queue Length 95th (ft)	9	0	17	9	25	0	9	42
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	622	850	2352	1045	794	2213
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.04	0.06	0.11	0.02	0.02	0.08

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	16	13	1	9	44	241	17	13	154	0
Future Volume (veh/h)	0	2	16	13	1	9	44	241	17	13	154	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2	17	14	1	10	48	262	18	14	167	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	129	109	147	9	99	1030	2764	1230	922	2701	0
Arrive On Green	0.00	0.07	0.07	0.07	0.07	0.07	0.07	1.00	1.00	0.02	0.76	0.00
Sat Flow, veh/h	0	1870	1579	1295	125	1437	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	2	17	15	0	10	48	262	18	14	167	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1420	0	1437	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.1	1.2	1.0	0.0	0.8	0.7	0.0	0.0	0.2	1.4	0.0
Cycle Q Clear(g_c), s	0.0	0.1	1.2	1.2	0.0	0.8	0.7	0.0	0.0	0.2	1.4	0.0
Prop In Lane	0.00		1.00	0.93		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	129	109	156	0	99	1030	2764	1230	922	2701	0
V/C Ratio(X)	0.00	0.02	0.16	0.10	0.00	0.10	0.05	0.09	0.01	0.02	0.06	0.00
Avail Cap(c_a), veh/h	0	374	316	359	0	305	1082	2764	1230	1005	2701	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	52.1	52.6	52.5	0.0	52.4	2.5	0.0	0.0	3.0	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.3	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.5	0.4	0.0	0.3	0.2	0.0	0.0	0.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	52.1	53.2	52.8	0.0	52.8	2.6	0.1	0.0	3.0	3.7	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		19			25			328			181	
Approach Delay, s/veh		53.1			52.8			0.4			3.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	99.3		14.3	8.5	97.2		14.3				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.2	2.0		3.2	2.7	3.4		3.2				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	1.1		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

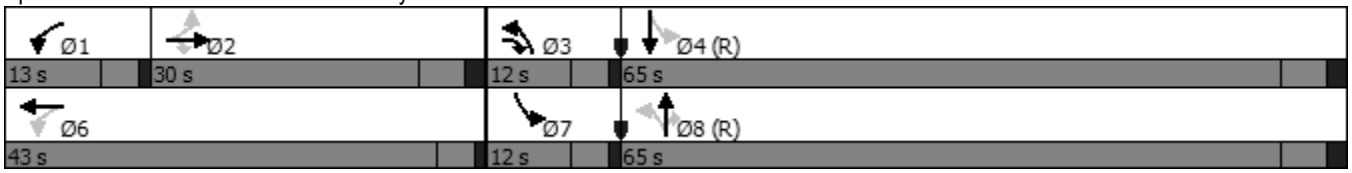
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	9	10	188	73	4	92	298	157	6	181
Future Volume (vph)	9	10	188	73	4	92	298	157	6	181
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	30.0	30.0	12.0	13.0	43.0	12.0	65.0	65.0	12.0	65.0
Total Split (%)	25.0%	25.0%	10.0%	10.8%	35.8%	10.0%	54.2%	54.2%	10.0%	54.2%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.0	15.5	19.5	19.2	93.1	91.3	91.3	88.1	80.9
Actuated g/C Ratio		0.08	0.13	0.16	0.16	0.78	0.76	0.76	0.73	0.67
v/c Ratio		0.16	0.54	0.38	0.04	0.11	0.12	0.14	0.01	0.08
Control Delay		50.0	10.0	45.2	21.3	5.9	7.2	2.2	5.2	6.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		50.0	10.0	45.2	21.3	5.9	7.2	2.2	5.2	6.4
LOS		D	B	D	C	A	A	A	A	A
Approach Delay		13.8			42.0		5.5			6.4
Approach LOS		B			D		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	204	79	12	100	324	171	7	201
v/c Ratio	0.16	0.54	0.38	0.04	0.11	0.12	0.14	0.01	0.08
Control Delay	50.0	10.0	45.2	21.3	5.9	7.2	2.2	5.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	10.0	45.2	21.3	5.9	7.2	2.2	5.2	6.4
Queue Length 50th (ft)	16	0	53	3	18	33	0	1	16
Queue Length 95th (ft)	36	54	82	17	55	97	35	4	29
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	313	388	213	543	896	2693	1216	819	2378
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.53	0.37	0.02	0.11	0.12	0.14	0.01	0.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	10	188	73	4	7	92	298	157	6	181	4
Future Volume (veh/h)	9	10	188	73	4	7	92	298	157	6	181	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	11	204	79	4	8	100	324	171	7	197	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	141	293	306	129	258	775	2209	984	602	2102	43
Arrive On Green	0.15	0.15	0.15	0.05	0.23	0.23	0.04	0.62	0.62	0.00	0.19	0.19
Sat Flow, veh/h	670	973	1578	1781	556	1111	1781	3554	1583	1781	3562	72
Grp Volume(v), veh/h	21	0	204	79	0	12	100	324	171	7	98	103
Grp Sat Flow(s),veh/h/ln	1643	0	1578	1781	0	1667	1781	1777	1583	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	14.5	4.4	0.0	0.7	2.6	4.6	5.5	0.2	5.4	5.5
Cycle Q Clear(g_c), s	1.2	0.0	14.5	4.4	0.0	0.7	2.6	4.6	5.5	0.2	5.4	5.5
Prop In Lane	0.48		1.00	1.00		0.67	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	283	0	293	306	0	387	775	2209	984	602	1048	1096
V/C Ratio(X)	0.07	0.00	0.70	0.26	0.00	0.03	0.13	0.15	0.17	0.01	0.09	0.09
Avail Cap(c_a), veh/h	371	0	379	344	0	535	814	2209	984	697	1048	1096
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	0.0	45.7	39.1	0.0	35.6	8.4	9.5	9.6	9.8	22.0	22.0
Incr Delay (d2), s/veh	0.1	0.0	3.8	0.4	0.0	0.0	0.1	0.1	0.4	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	5.9	2.0	0.0	0.3	0.9	1.7	1.9	0.1	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	49.5	39.5	0.0	35.7	8.5	9.6	10.0	9.8	22.2	22.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	C	C
Approach Vol, veh/h		225			91			595			208	
Approach Delay, s/veh		49.1			39.0			9.5			21.8	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	10.5	23.4	9.3	76.8		33.9	5.5	80.6				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	8.5	24.0	7.5	59.0		* 39	7.5	59.0				
Max Q Clear Time (g_c+I1), s	6.4	16.5	4.6	7.5		2.7	2.2	7.5				
Green Ext Time (p_c), s	0.0	0.4	0.1	1.2		0.0	0.0	2.8				

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

Notes

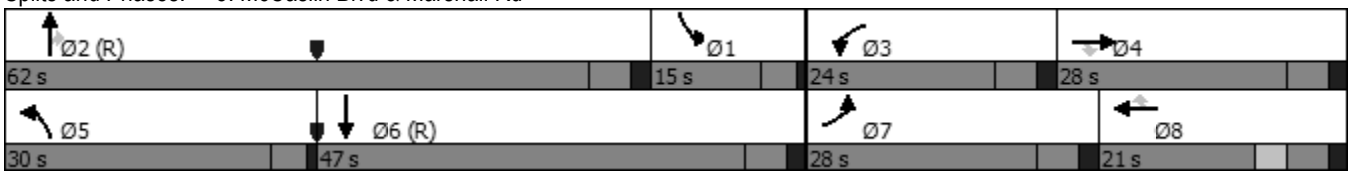
User approved pedestrian interval to be less than phase max green.

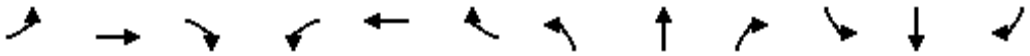
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	19	62	31	19	63	195	792	73	93	450	331
Future Volume (vph)	403	19	62	31	19	63	195	792	73	93	450	331
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	21.0	21.0	24.0	21.0	21.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	28.0	28.0	28.0	24.0	21.0	21.0	30.0	62.0	62.0	15.0	47.0	
Total Split (%)	21.7%	21.7%	21.7%	18.6%	16.3%	16.3%	23.3%	48.1%	48.1%	11.6%	36.4%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Ped	Ped	None	Ped	Ped	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	17.5	17.5	36.9	8.0	22.5	22.5	13.3	56.0	56.0	10.5	53.2	129.0
Actuated g/C Ratio	0.14	0.14	0.29	0.06	0.17	0.17	0.10	0.43	0.43	0.08	0.41	1.00
v/c Ratio	0.71	0.69	0.12	0.31	0.06	0.17	0.60	0.39	0.11	0.36	0.23	0.23
Control Delay	62.1	69.3	0.4	64.6	47.4	0.9	62.2	25.5	0.9	60.0	25.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	69.3	0.4	64.6	47.4	0.9	62.2	25.5	0.9	60.0	25.4	0.3
LOS	E	E	A	E	D	A	E	C	A	E	C	A
Approach Delay		56.3			26.4			30.6			19.6	
Approach LOS		E			C			C			B	

Intersection Summary	
Cycle Length: 129	
Actuated Cycle Length: 129	
Offset: 64 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 110.0%	ICU Level of Service H
Analysis Period (min) 15	

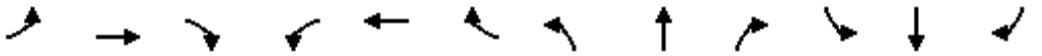
Splits and Phases: 3: McCaslin Blvd & Marshall Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	307	152	67	34	21	68	212	861	79	101	489	360
v/c Ratio	0.71	0.69	0.12	0.31	0.06	0.17	0.60	0.39	0.11	0.36	0.23	0.23
Control Delay	62.1	69.3	0.4	64.6	47.4	0.9	62.2	25.5	0.9	60.0	25.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	69.3	0.4	64.6	47.4	0.9	62.2	25.5	0.9	60.0	25.4	0.3
Queue Length 50th (ft)	136	135	0	28	15	0	88	176	0	41	95	0
Queue Length 95th (ft)	182	209	0	63	41	0	126	213	6	71	130	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	549	220	564	246	325	408	678	2207	750	279	2097	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.69	0.12	0.14	0.06	0.17	0.31	0.39	0.11	0.36	0.23	0.23

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	19	62	31	19	63	195	792	73	93	450	331
Future Volume (veh/h)	403	19	62	31	19	63	195	792	73	93	450	331
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	453	0	67	34	21	68	212	861	0	101	489	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	575	0	310	49	217	183	277	2217		539	2663	
Arrive On Green	0.11	0.00	0.20	0.03	0.12	0.12	0.08	0.43	0.00	0.16	0.52	0.00
Sat Flow, veh/h	5344	0	1578	1781	1870	1573	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	453	0	67	34	21	68	212	861	0	101	489	0
Grp Sat Flow(s),veh/h/ln	1781	0	1578	1781	1870	1573	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	10.7	0.0	4.6	2.4	1.3	3.7	7.8	14.8	0.0	3.3	6.5	0.0
Cycle Q Clear(g_c), s	10.7	0.0	4.6	2.4	1.3	3.7	7.8	14.8	0.0	3.3	6.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	575	0	310	49	217	183	277	2217		539	2663	
V/C Ratio(X)	0.79	0.00	0.22	0.70	0.10	0.37	0.76	0.39		0.19	0.18	
Avail Cap(c_a), veh/h	911	0	310	249	217	183	683	2217		539	2663	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.00	0.96	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.1	0.0	43.5	62.2	51.0	27.2	58.1	24.8	0.0	47.3	16.3	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.3	16.6	0.2	1.3	4.4	0.5	0.0	0.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	1.8	1.3	0.6	2.1	3.6	6.1	0.0	1.4	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.5	0.0	43.8	78.8	51.1	28.4	62.5	25.4	0.0	47.5	16.5	0.0
LnGrp LOS	E	A	D	E	D	C	E	C		D	B	
Approach Vol, veh/h		520			123			1073			590	
Approach Delay, s/veh		56.6			46.2			32.7			21.8	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.1	62.0	9.5	31.3	14.9	73.3	19.9	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.5	* 56	18.0	22.0	25.5	41.0	22.0	15.0
Max Q Clear Time (g_c+I1), s	5.3	16.8	4.4	6.6	9.8	8.5	12.7	5.7
Green Ext Time (p_c), s	0.1	7.3	0.0	0.1	0.6	3.7	1.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	8	9	1	1	0	9	8	7	0	7	6
Future Vol, veh/h	6	8	9	1	1	0	9	8	7	0	7	6
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.69	0.69	0.69
Heavy Vehicles, %	10	10	10	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	10	11	4	4	0	10	9	8	0	10	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

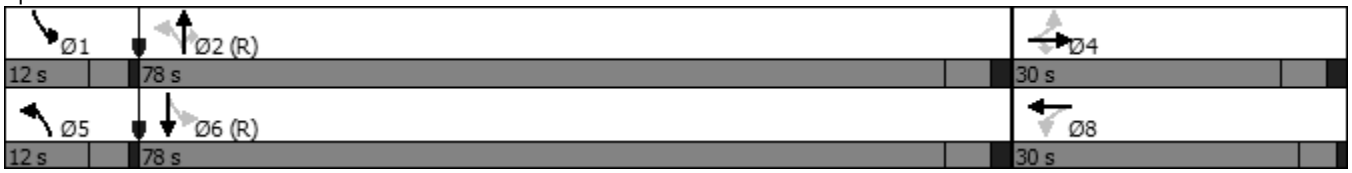
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.2	7	6.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	26%	50%	0%
Vol Thru, %	33%	35%	50%	54%
Vol Right, %	29%	39%	0%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	23	2	13
LT Vol	9	6	1	0
Through Vol	8	8	1	7
RT Vol	7	9	0	6
Lane Flow Rate	27	28	8	19
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.031	0.009	0.019
Departure Headway (Hd)	3.877	3.973	4.101	3.706
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	925	903	874	967
Service Time	1.894	1.989	2.12	1.726
HCM Lane V/C Ratio	0.029	0.031	0.009	0.02
HCM Control Delay	7	7.1	7.2	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	18	198	24	21	235	348	14	30	568
Future Volume (vph)	1	18	198	24	21	235	348	14	30	568
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		24.0	24.0		25.5	83.4	77.4	77.4	79.7	72.0
Actuated g/C Ratio		0.20	0.20		0.21	0.70	0.64	0.64	0.66	0.60
v/c Ratio		0.06	0.44		0.12	0.47	0.17	0.01	0.05	0.30
Control Delay		39.5	8.4		26.0	11.1	3.6	0.0	5.4	12.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.5	8.4		26.0	11.1	3.6	0.0	5.4	12.1
LOS		D	A		C	B	A	A	A	B
Approach Delay		11.2			26.0		6.5			11.7
Approach LOS		B			C		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 10.2	Intersection LOS: B
Intersection Capacity Utilization 82.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr

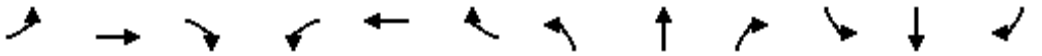


Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	215	77	255	378	15	33	626
v/c Ratio	0.06	0.44	0.12	0.47	0.17	0.01	0.05	0.30
Control Delay	39.5	8.4	26.0	11.1	3.6	0.0	5.4	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	8.4	26.0	11.1	3.6	0.0	5.4	12.1
Queue Length 50th (ft)	13	0	16	44	18	0	7	116
Queue Length 95th (ft)	36	65	37	113	25	0	16	150
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	369	488	641	545	2282	1011	707	2119
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.44	0.12	0.47	0.17	0.01	0.05	0.30

Intersection Summary

HCM 6th Signalized Intersection Summary
1: Marshall Rd & Center Dr

08/15/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	18	198	24	21	26	235	348	14	30	568	8
Future Volume (veh/h)	1	18	198	24	21	26	235	348	14	30	568	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	20	215	26	23	28	255	378	15	33	617	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	390	336	220	187	247	732	2840	1261	877	2785	41
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.10	1.00	1.00	0.03	0.78	0.78
Sat Flow, veh/h	24	1837	1581	804	880	1163	1781	3554	1578	1781	3585	52
Grp Volume(v), veh/h	21	0	215	41	0	36	255	378	15	33	306	320
Grp Sat Flow(s),veh/h/ln	1861	0	1581	1359	0	1489	1781	1777	1578	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.9	1.4	0.0	2.3	3.9	0.0	0.0	0.4	5.6	5.6
Cycle Q Clear(g_c), s	1.1	0.0	14.9	2.5	0.0	2.3	3.9	0.0	0.0	0.4	5.6	5.6
Prop In Lane	0.05		1.00	0.63		0.78	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	427	0	336	338	0	316	732	2840	1261	877	1380	1445
V/C Ratio(X)	0.05	0.00	0.64	0.12	0.00	0.11	0.35	0.13	0.01	0.04	0.22	0.22
Avail Cap(c_a), veh/h	427	0	336	338	0	316	754	2840	1261	939	1380	1445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	43.1	38.1	0.0	38.1	2.2	0.0	0.0	2.3	3.6	3.6
Incr Delay (d2), s/veh	0.2	0.0	9.0	0.7	0.0	0.7	0.3	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	6.7	1.1	0.0	0.9	0.8	0.0	0.0	0.1	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	52.1	38.9	0.0	38.9	2.5	0.1	0.0	2.4	4.0	4.0
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		236			77			648			659	
Approach Delay, s/veh		50.8			38.9			1.0			3.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	101.9		31.5	10.5	99.2		31.5				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.4	2.0		16.9	5.9	7.6		4.5				
Green Ext Time (p_c), s	0.0	2.7		0.5	0.1	4.1		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		11.2
HCM 6th LOS		B

Notes

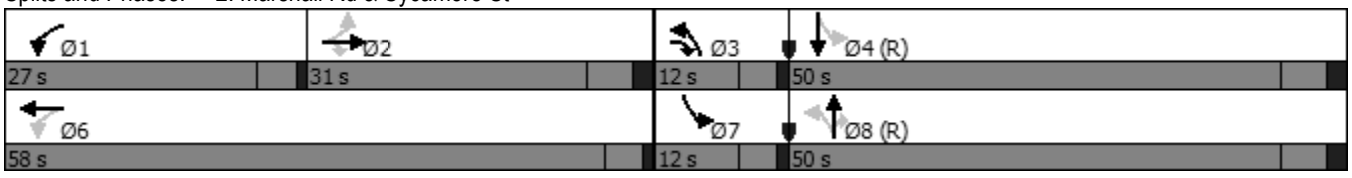
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	3	14	254	282	30	235	423	203	26	803
Future Volume (vph)	3	14	254	282	30	235	423	203	26	803
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	9.5	9.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	31.0	31.0	12.0	27.0	58.0	12.0	50.0	50.0	12.0	50.0
Total Split (%)	25.8%	25.8%	10.0%	22.5%	48.3%	10.0%	41.7%	41.7%	10.0%	41.7%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.1	25.7	33.0	33.0	77.1	69.8	69.8	62.9	55.1
Actuated g/C Ratio		0.08	0.21	0.28	0.28	0.64	0.58	0.58	0.52	0.46
v/c Ratio		0.12	0.62	0.76	0.11	0.59	0.22	0.22	0.05	0.54
Control Delay		48.5	25.6	48.6	17.8	25.8	22.0	9.1	10.7	20.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.5	25.6	48.6	17.8	25.8	22.0	9.1	10.7	20.6
LOS		D	C	D	B	C	C	A	B	C
Approach Delay		27.0			43.9		20.0			20.3
Approach LOS		C			D		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 24.4	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

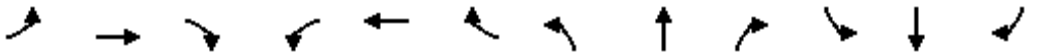
Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	276	307	55	255	460	221	28	880
v/c Ratio	0.12	0.62	0.76	0.11	0.59	0.22	0.22	0.05	0.54
Control Delay	48.5	25.6	48.6	17.8	25.8	22.0	9.1	10.7	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	25.6	48.6	17.8	25.8	22.0	9.1	10.7	20.6
Queue Length 50th (ft)	14	91	204	18	120	128	9	7	146
Queue Length 95th (ft)	32	163	231	39	#323	203	82	m21	384
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	361	443	420	788	435	2057	986	536	1622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.62	0.73	0.07	0.59	0.22	0.22	0.05	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	14	254	282	30	20	235	423	203	26	803	6
Future Volume (veh/h)	3	14	254	282	30	20	235	423	203	26	803	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	15	276	307	33	22	255	460	221	28	873	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	299	389	526	393	262	341	1638	726	394	1531	12
Arrive On Green	0.18	0.18	0.18	0.15	0.38	0.38	0.06	0.46	0.46	0.03	0.56	0.56
Sat Flow, veh/h	178	1622	1572	1781	1045	697	1781	3554	1575	1781	3613	29
Grp Volume(v), veh/h	18	0	276	307	0	55	255	460	221	28	429	451
Grp Sat Flow(s),veh/h/ln	1800	0	1572	1781	0	1742	1781	1777	1575	1781	1777	1865
Q Serve(g_s), s	0.0	0.0	19.2	16.1	0.0	2.4	7.5	9.6	10.6	1.1	18.6	18.6
Cycle Q Clear(g_c), s	1.0	0.0	19.2	16.1	0.0	2.4	7.5	9.6	10.6	1.1	18.6	18.6
Prop In Lane	0.17		1.00	1.00		0.40	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	367	0	389	526	0	655	341	1638	726	394	753	790
V/C Ratio(X)	0.05	0.00	0.71	0.58	0.00	0.08	0.75	0.28	0.30	0.07	0.57	0.57
Avail Cap(c_a), veh/h	409	0	427	585	0	776	341	1638	726	460	753	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.89	0.89	0.89	0.95	0.95	0.95
Uniform Delay (d), s/veh	40.3	0.0	41.3	30.2	0.0	24.1	25.0	20.0	20.3	18.5	19.2	19.2
Incr Delay (d2), s/veh	0.1	0.0	4.9	1.2	0.0	0.1	7.9	0.4	1.0	0.1	3.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.9	7.1	0.0	1.0	3.6	4.0	4.0	0.4	7.2	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	46.1	31.4	0.0	24.2	33.0	20.4	21.2	18.5	22.1	22.0
LnGrp LOS	D	A	D	C	A	C	C	C	C	B	C	C
Approach Vol, veh/h		294			362			936			908	
Approach Delay, s/veh		45.8			30.3			24.0			21.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	23.0	28.1	12.0	56.9		51.1	7.5	61.3				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	22.5	25.0	7.5	44.0		* 54	7.5	44.0				
Max Q Clear Time (g_c+I1), s	18.1	21.2	9.5	20.6		4.4	3.1	12.6				
Green Ext Time (p_c), s	0.4	0.4	0.0	5.7		0.3	0.0	4.0				

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

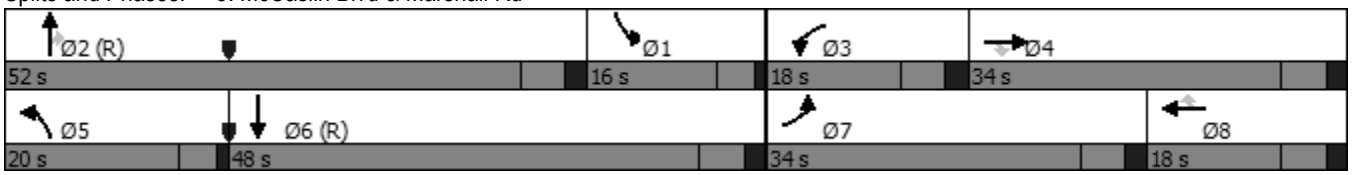
User approved pedestrian interval to be less than phase max green.

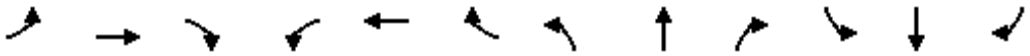
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	875	49	452	77	46	42	188	564	50	89	978	626
Future Volume (vph)	875	49	452	77	46	42	188	564	50	89	978	626
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	34.0	34.0	34.0	18.0	18.0	18.0	20.0	52.0	52.0	16.0	48.0	
Total Split (%)	28.3%	28.3%	28.3%	15.0%	15.0%	15.0%	16.7%	43.3%	43.3%	13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	31.6	31.6	32.3	10.2	10.7	10.7	12.3	46.0	46.0	11.5	45.2	120.0
Actuated g/C Ratio	0.26	0.26	0.27	0.08	0.09	0.09	0.10	0.38	0.38	0.10	0.38	1.00
v/c Ratio	0.79	0.79	0.73	0.56	0.30	0.13	0.58	0.31	0.08	0.30	0.56	0.43
Control Delay	58.0	64.5	16.1	66.6	55.2	0.8	57.7	26.5	0.2	53.1	31.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	64.5	16.1	66.6	55.2	0.8	57.7	26.5	0.2	53.1	31.2	0.9
LOS	E	E	B	E	E	A	E	C	A	D	C	A
Approach Delay		45.7			46.6			32.2			21.2	
Approach LOS		D			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd

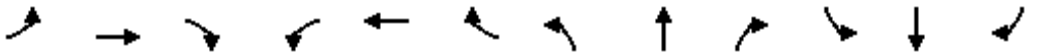




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	666	338	491	84	50	46	204	613	54	97	1063	680
v/c Ratio	0.79	0.79	0.73	0.56	0.30	0.13	0.58	0.31	0.08	0.30	0.56	0.43
Control Delay	58.0	64.5	16.1	66.6	55.2	0.8	57.7	26.5	0.2	53.1	31.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	64.5	16.1	66.6	55.2	0.8	57.7	26.5	0.2	53.1	31.2	0.9
Queue Length 50th (ft)	271	275	30	63	36	0	78	120	0	36	235	0
Queue Length 95th (ft)	#393	#481	185	116	77	0	115	152	0	64	294	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	848	428	672	177	186	364	443	1949	716	328	1913	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.79	0.73	0.47	0.27	0.13	0.46	0.31	0.08	0.30	0.56	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	875	49	452	77	46	42	188	564	50	89	978	626
Future Volume (veh/h)	875	49	452	77	46	42	188	564	50	89	978	626
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	989	0	491	84	50	46	204	613	0	97	1063	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1127	0	367	107	154	128	267	1957		427	2257	
Arrive On Green	0.21	0.00	0.23	0.06	0.08	0.08	0.08	0.38	0.00	0.12	0.44	0.00
Sat Flow, veh/h	5344	0	1575	1781	1870	1556	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	989	0	491	84	50	46	204	613	0	97	1063	0
Grp Sat Flow(s),veh/h/ln	1781	0	1575	1781	1870	1556	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	21.5	0.0	28.0	5.6	3.0	2.5	6.9	10.1	0.0	3.0	17.6	0.0
Cycle Q Clear(g_c), s	21.5	0.0	28.0	5.6	3.0	2.5	6.9	10.1	0.0	3.0	17.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1127	0	367	107	154	128	267	1957		427	2257	
V/C Ratio(X)	0.88	0.00	1.34	0.79	0.32	0.36	0.76	0.31		0.23	0.47	
Avail Cap(c_a), veh/h	1247	0	367	178	187	156	446	1957		427	2257	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.77	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.9	0.0	46.0	55.7	51.9	29.8	54.3	25.9	0.0	47.4	23.6	0.0
Incr Delay (d2), s/veh	5.4	0.0	165.0	12.1	1.2	1.7	4.5	0.4	0.0	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	27.6	2.8	1.5	1.4	3.2	4.2	0.0	1.3	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	211.0	67.7	53.1	31.5	58.8	26.3	0.0	47.7	24.3	0.0
LnGrp LOS	D	A	F	E	D	C	E	C		D	C	
Approach Vol, veh/h		1480			180			817			1160	
Approach Delay, s/veh		104.3			54.4			34.4			26.3	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	52.0	13.2	34.0	13.8	59.0	31.3	15.9
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	11.5	* 46	12.0	28.0	15.5	42.0	28.0	12.0
Max Q Clear Time (g_c+I1), s	5.0	12.1	7.6	30.0	8.9	19.6	23.5	5.0
Green Ext Time (p_c), s	0.1	4.8	0.1	0.0	0.3	8.1	1.8	0.2

Intersection Summary	
HCM 6th Ctrl Delay	61.2
HCM 6th LOS	E

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	4	21	1	6	0	24	17	3	1	13	25
Future Vol, veh/h	17	4	21	1	6	0	24	17	3	1	13	25
Peak Hour Factor	0.73	0.73	0.73	0.50	0.50	0.50	0.67	0.67	0.67	0.75	0.75	0.75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	23	5	29	2	12	0	36	25	4	1	17	33
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

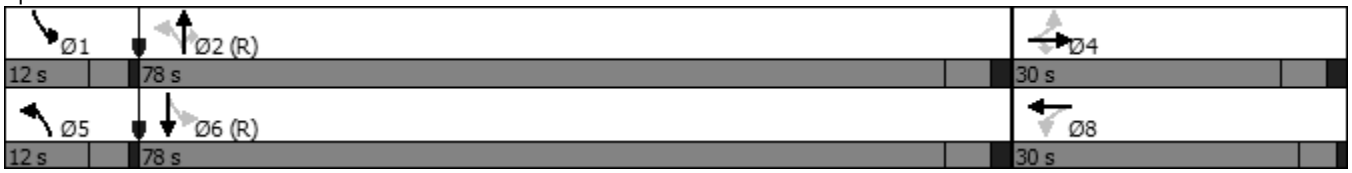
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.5	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	40%	14%	3%
Vol Thru, %	39%	10%	86%	33%
Vol Right, %	7%	50%	0%	64%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	42	7	39
LT Vol	24	17	1	1
Through Vol	17	4	6	13
RT Vol	3	21	0	25
Lane Flow Rate	66	58	14	52
Geometry Grp	1	1	1	1
Degree of Util (X)	0.075	0.062	0.016	0.053
Departure Headway (Hd)	4.131	3.893	4.176	3.693
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	914	851	964
Service Time	2.166	1.943	2.232	1.737
HCM Lane V/C Ratio	0.076	0.063	0.016	0.054
HCM Control Delay	7.5	7.2	7.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	16	13	4	44	241	17	15	154
Future Volume (vph)	4	16	13	4	44	241	17	15	154
Turn Type	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	4			8	5	2		1	6
Permitted Phases		4	8		2		2	6	
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.0	24.0		25.5	84.1	79.7	79.7	81.3	75.1
Actuated g/C Ratio	0.20	0.20		0.21	0.70	0.66	0.66	0.68	0.63
v/c Ratio	0.01	0.05		0.05	0.06	0.11	0.02	0.02	0.08
Control Delay	38.8	0.2		26.4	3.3	4.8	0.1	5.2	9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	0.2		26.4	3.3	4.8	0.1	5.2	9.6
LOS	D	A		C	A	A	A	A	A
Approach Delay	7.6			26.4		4.3			9.2
Approach LOS	A			C		A			A

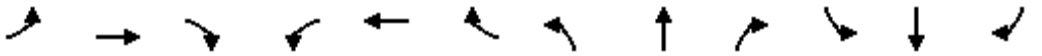
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.11	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	17	30	48	262	18	16	167
v/c Ratio	0.01	0.05	0.05	0.06	0.11	0.02	0.02	0.08
Control Delay	38.8	0.2	26.4	3.3	4.8	0.1	5.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	0.2	26.4	3.3	4.8	0.1	5.2	9.6
Queue Length 50th (ft)	3	0	5	4	14	0	3	26
Queue Length 95th (ft)	13	0	19	9	25	0	10	42
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	631	851	2351	1045	794	2213
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.05	0.06	0.11	0.02	0.02	0.08

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	4	16	13	4	11	44	241	17	15	154	0
Future Volume (veh/h)	0	4	16	13	4	11	44	241	17	15	154	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	4	17	14	4	12	48	262	18	16	167	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	136	115	131	31	105	1025	2745	1221	921	2688	0
Arrive On Green	0.00	0.07	0.07	0.07	0.07	0.07	0.07	1.00	1.00	0.02	0.76	0.00
Sat Flow, veh/h	0	1870	1579	1069	427	1437	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	4	17	18	0	12	48	262	18	16	167	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1496	0	1437	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.2	1.2	0.7	0.0	0.9	0.7	0.0	0.0	0.2	1.4	0.0
Cycle Q Clear(g_c), s	0.0	0.2	1.2	1.2	0.0	0.9	0.7	0.0	0.0	0.2	1.4	0.0
Prop In Lane	0.00		1.00	0.78		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	136	115	162	0	105	1025	2745	1221	921	2688	0
V/C Ratio(X)	0.00	0.03	0.15	0.11	0.00	0.11	0.05	0.10	0.01	0.02	0.06	0.00
Avail Cap(c_a), veh/h	0	374	316	368	0	305	1077	2745	1221	1001	2688	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	51.7	52.1	52.1	0.0	52.0	2.6	0.0	0.0	3.1	3.7	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.6	0.3	0.0	0.5	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.5	0.5	0.0	0.4	0.2	0.0	0.0	0.1	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.8	52.7	52.4	0.0	52.5	2.7	0.1	0.0	3.1	3.8	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		21			30			328			183	
Approach Delay, s/veh		52.5			52.4			0.4			3.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	98.7		14.8	8.5	96.8		14.8				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.2	2.0		3.2	2.7	3.4		3.2				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	1.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		6.2
HCM 6th LOS		A

Notes

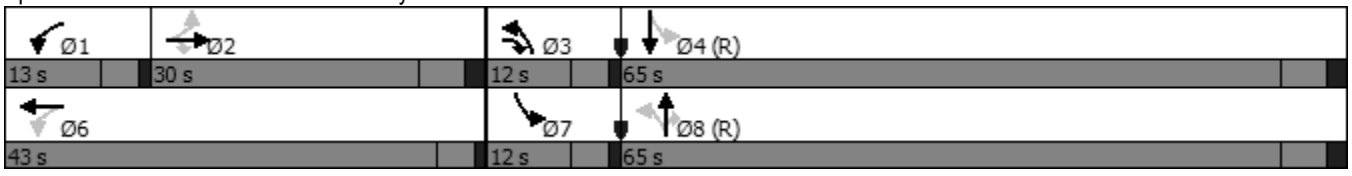
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	9	11	188	130	5	92	298	200	6	181
Future Volume (vph)	9	11	188	130	5	92	298	200	6	181
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	30.0	30.0	12.0	13.0	43.0	12.0	65.0	65.0	12.0	65.0
Total Split (%)	25.0%	25.0%	10.0%	10.8%	35.8%	10.0%	54.2%	54.2%	10.0%	54.2%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.1	15.6	19.9	19.9	90.5	87.5	87.5	85.4	78.2
Actuated g/C Ratio		0.08	0.13	0.17	0.17	0.75	0.73	0.73	0.71	0.65
v/c Ratio		0.17	0.53	0.66	0.05	0.12	0.13	0.18	0.01	0.09
Control Delay		50.0	10.0	57.7	21.7	6.0	7.4	2.0	5.3	6.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		50.0	10.0	57.7	21.7	6.0	7.4	2.0	5.3	6.6
LOS		D	A	E	C	A	A	A	A	A
Approach Delay		13.9			54.6		5.4			6.6
Approach LOS		B			D		A			A

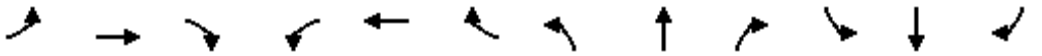
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 13.3	Intersection LOS: B
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	22	204	141	13	100	324	217	7	201
v/c Ratio	0.17	0.53	0.66	0.05	0.12	0.13	0.18	0.01	0.09
Control Delay	50.0	10.0	57.7	21.7	6.0	7.4	2.0	5.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	10.0	57.7	21.7	6.0	7.4	2.0	5.3	6.6
Queue Length 50th (ft)	17	0	99	3	18	33	0	1	16
Queue Length 95th (ft)	38	54	134	18	55	97	39	4	29
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	316	389	213	547	870	2579	1184	796	2299
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.66	0.02	0.11	0.13	0.18	0.01	0.09

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	11	188	130	5	7	92	298	200	6	181	4
Future Volume (veh/h)	9	11	188	130	5	7	92	298	200	6	181	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	12	204	141	5	8	100	324	217	7	197	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	148	293	343	164	262	749	2134	950	560	2026	41
Arrive On Green	0.15	0.15	0.15	0.07	0.25	0.25	0.04	0.60	0.60	0.00	0.19	0.19
Sat Flow, veh/h	635	1019	1578	1781	647	1035	1781	3554	1582	1781	3562	72
Grp Volume(v), veh/h	22	0	204	141	0	13	100	324	217	7	98	103
Grp Sat Flow(s),veh/h/ln	1654	0	1578	1781	0	1681	1781	1777	1582	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	14.5	7.9	0.0	0.7	2.7	4.8	7.6	0.2	5.5	5.5
Cycle Q Clear(g_c), s	1.2	0.0	14.5	7.9	0.0	0.7	2.7	4.8	7.6	0.2	5.5	5.5
Prop In Lane	0.45		1.00	1.00		0.62	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	284	0	293	343	0	426	749	2134	950	560	1011	1057
V/C Ratio(X)	0.08	0.00	0.70	0.41	0.00	0.03	0.13	0.15	0.23	0.01	0.10	0.10
Avail Cap(c_a), veh/h	373	0	379	343	0	539	789	2134	950	655	1011	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	0.0	45.7	38.4	0.0	33.7	9.4	10.5	11.1	10.8	23.2	23.2
Incr Delay (d2), s/veh	0.1	0.0	3.8	0.8	0.0	0.0	0.1	0.1	0.5	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	5.9	3.5	0.0	0.3	1.0	1.9	2.7	0.1	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	49.5	39.2	0.0	33.7	9.5	10.7	11.6	10.8	23.4	23.4
LnGrp LOS	D	A	D	D	A	C	A	B	B	B	C	C
Approach Vol, veh/h		226			154			641			208	
Approach Delay, s/veh		49.0			38.7			10.8			23.0	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	13.0	23.4	9.3	74.3		36.4	5.5	78.0				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	8.5	24.0	7.5	59.0		* 39	7.5	59.0				
Max Q Clear Time (g_c+I1), s	9.9	16.5	4.7	7.5		2.7	2.2	9.6				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.2		0.0	0.0	3.0				

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

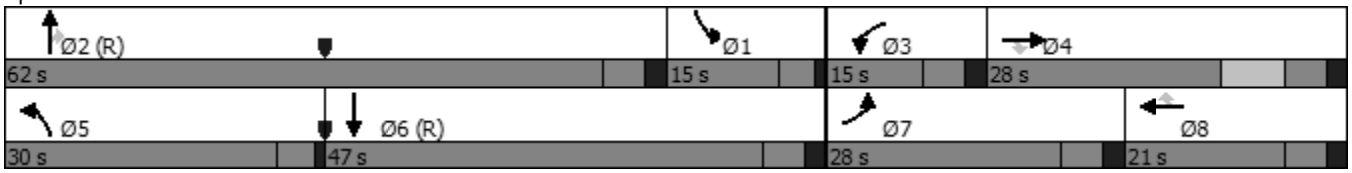
User approved pedestrian interval to be less than phase max green.

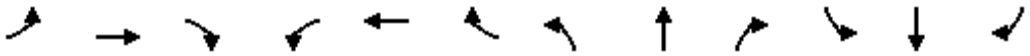
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	454	20	67	31	19	63	199	792	73	93	450	370
Future Volume (vph)	454	20	67	31	19	63	199	792	73	93	450	370
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	21.0	21.0	11.0	21.0	21.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	28.0	28.0	28.0	15.0	21.0	21.0	30.0	62.0	62.0	15.0	47.0	
Total Split (%)	22.2%	22.2%	22.2%	11.9%	16.7%	16.7%	23.8%	49.2%	49.2%	11.9%	37.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Ped	Ped	None	Ped	Ped	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	18.2	18.2	34.3	7.6	18.8	18.8	13.2	56.0	56.0	10.5	53.3	126.0
Actuated g/C Ratio	0.14	0.14	0.27	0.06	0.15	0.15	0.10	0.44	0.44	0.08	0.42	1.00
v/c Ratio	0.73	0.74	0.13	0.32	0.08	0.16	0.60	0.38	0.10	0.35	0.23	0.25
Control Delay	60.8	70.7	0.5	64.3	49.2	0.8	60.6	24.0	0.2	58.3	24.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	70.7	0.5	64.3	49.2	0.8	60.6	24.0	0.2	58.3	24.0	0.4
LOS	E	E	A	E	D	A	E	C	A	E	C	A
Approach Delay		56.3			26.6			29.2			17.9	
Approach LOS		E			C			C			B	

Intersection Summary	
Cycle Length: 126	
Actuated Cycle Length: 126	
Offset: 64 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 30.8	Intersection LOS: C
Intersection Capacity Utilization 110.0%	ICU Level of Service H
Analysis Period (min) 15	

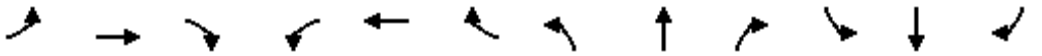
Splits and Phases: 3: McCaslin Blvd & Marshall Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	340	175	73	34	21	68	216	861	79	101	489	402
v/c Ratio	0.73	0.74	0.13	0.32	0.08	0.16	0.60	0.38	0.10	0.35	0.23	0.25
Control Delay	60.8	70.7	0.5	64.3	49.2	0.8	60.6	24.0	0.2	58.3	24.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	70.7	0.5	64.3	49.2	0.8	60.6	24.0	0.2	58.3	24.0	0.4
Queue Length 50th (ft)	147	151	0	27	15	0	88	168	0	40	91	0
Queue Length 95th (ft)	196	234	0	62	41	0	126	204	0	70	125	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	562	235	547	126	277	420	694	2260	795	286	2149	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.74	0.13	0.27	0.08	0.16	0.31	0.38	0.10	0.35	0.23	0.25

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	454	20	67	31	19	63	199	792	73	93	450	370
Future Volume (veh/h)	454	20	67	31	19	63	199	792	73	93	450	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	509	0	73	34	21	68	216	861	0	101	489	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	636	0	332	49	222	187	283	2269		439	2561	
Arrive On Green	0.12	0.00	0.21	0.03	0.12	0.12	0.08	0.44	0.00	0.13	0.50	0.00
Sat Flow, veh/h	5344	0	1578	1781	1870	1573	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	509	0	73	34	21	68	216	861	0	101	489	0
Grp Sat Flow(s),veh/h/ln	1781	0	1578	1781	1870	1573	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	11.7	0.0	4.8	2.4	1.3	3.7	7.7	14.2	0.0	3.3	6.7	0.0
Cycle Q Clear(g_c), s	11.7	0.0	4.8	2.4	1.3	3.7	7.7	14.2	0.0	3.3	6.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	636	0	332	49	222	187	283	2269		439	2561	
V/C Ratio(X)	0.80	0.00	0.22	0.69	0.09	0.36	0.76	0.38		0.23	0.19	
Avail Cap(c_a), veh/h	933	0	332	127	223	187	699	2269		439	2561	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.00	0.92	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	0.0	41.2	60.7	49.5	28.6	56.6	23.4	0.0	49.4	17.3	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.3	15.9	0.2	1.2	4.2	0.5	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	1.9	1.3	0.6	2.0	3.5	5.8	0.0	1.5	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	0.0	41.5	76.6	49.6	29.7	60.9	23.9	0.0	49.7	17.5	0.0
LnGrp LOS	E	A	D	E	D	C	E	C		D	B	
Approach Vol, veh/h		582			123			1077			590	
Approach Delay, s/veh		55.0			46.1			31.3			23.0	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	62.0	9.5	32.5	14.8	69.2	21.0	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.5	* 56	9.0	22.0	25.5	41.0	22.0	15.0
Max Q Clear Time (g_c+I1), s	5.3	16.2	4.4	6.8	9.7	8.7	13.7	5.7
Green Ext Time (p_c), s	0.1	7.3	0.0	0.1	0.6	3.7	1.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	10	10	21	4	0	10	27	23	0	35	8
Future Vol, veh/h	7	10	10	21	4	0	10	27	23	0	35	8
Peak Hour Factor	0.83	0.92	0.83	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.69	0.69
Heavy Vehicles, %	10	2	10	2	2	2	0	0	2	2	0	0
Mvmt Flow	8	11	12	23	4	0	11	31	25	0	51	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

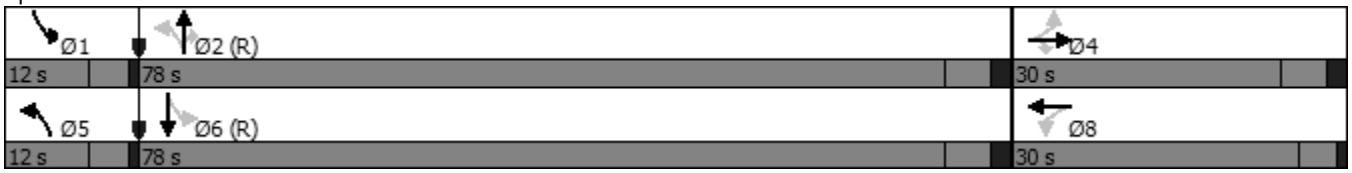
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.6	7.2	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	26%	84%	0%
Vol Thru, %	45%	37%	16%	81%
Vol Right, %	38%	37%	0%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	27	25	43
LT Vol	10	7	21	0
Through Vol	27	10	4	35
RT Vol	23	10	0	8
Lane Flow Rate	67	31	27	62
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.036	0.033	0.068
Departure Headway (Hd)	3.852	4.144	4.35	3.941
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	925	857	817	904
Service Time	1.896	2.2	2.406	1.985
HCM Lane V/C Ratio	0.072	0.036	0.033	0.069
HCM Control Delay	7.2	7.4	7.6	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	21	198	24	24	235	348	14	32	568
Future Volume (vph)	1	21	198	24	24	235	348	14	32	568
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		24.0	24.0		25.5	83.4	77.4	77.4	79.7	72.0
Actuated g/C Ratio		0.20	0.20		0.21	0.70	0.64	0.64	0.66	0.60
v/c Ratio		0.06	0.44		0.13	0.47	0.17	0.01	0.05	0.30
Control Delay		39.6	8.4		26.0	11.0	3.5	0.0	5.4	12.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.6	8.4		26.0	11.0	3.5	0.0	5.4	12.1
LOS		D	A		C	B	A	A	A	B
Approach Delay		11.5			26.0		6.4			11.7
Approach LOS		B			C		A			B

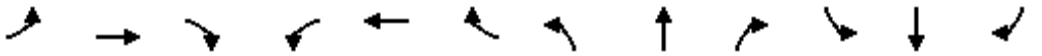
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 82.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	215	81	255	378	15	35	626
v/c Ratio	0.06	0.44	0.13	0.47	0.17	0.01	0.05	0.30
Control Delay	39.6	8.4	26.0	11.0	3.5	0.0	5.4	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	8.4	26.0	11.0	3.5	0.0	5.4	12.1
Queue Length 50th (ft)	15	0	17	43	18	0	7	116
Queue Length 95th (ft)	39	65	39	113	26	0	16	150
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	370	488	644	545	2282	1010	707	2119
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.44	0.13	0.47	0.17	0.01	0.05	0.30

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	21	198	24	24	27	235	348	14	32	568	8
Future Volume (veh/h)	1	21	198	24	24	27	235	348	14	32	568	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	23	215	26	26	29	255	378	15	35	617	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	392	336	212	203	243	733	2840	1261	879	2788	41
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.10	1.00	1.00	0.03	0.78	0.78
Sat Flow, veh/h	19	1844	1581	770	954	1145	1781	3554	1578	1781	3585	52
Grp Volume(v), veh/h	24	0	215	43	0	38	255	378	15	35	306	320
Grp Sat Flow(s),veh/h/ln	1863	0	1581	1377	0	1492	1781	1777	1578	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.9	1.3	0.0	2.5	3.9	0.0	0.0	0.5	5.5	5.6
Cycle Q Clear(g_c), s	1.2	0.0	14.9	2.6	0.0	2.5	3.9	0.0	0.0	0.5	5.5	5.6
Prop In Lane	0.04		1.00	0.60		0.77	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	427	0	336	341	0	317	733	2840	1261	879	1382	1447
V/C Ratio(X)	0.06	0.00	0.64	0.13	0.00	0.12	0.35	0.13	0.01	0.04	0.22	0.22
Avail Cap(c_a), veh/h	427	0	336	341	0	317	755	2840	1261	940	1382	1447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	43.1	38.1	0.0	38.2	2.2	0.0	0.0	2.3	3.6	3.6
Incr Delay (d2), s/veh	0.3	0.0	9.0	0.8	0.0	0.8	0.3	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.7	1.1	0.0	1.0	0.8	0.0	0.0	0.1	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	52.1	38.9	0.0	38.9	2.4	0.1	0.0	2.3	4.0	3.9
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		239			81			648			661	
Approach Delay, s/veh		50.7			38.9			1.0			3.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	101.9		31.5	10.5	99.3		31.5				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.5	2.0		16.9	5.9	7.6		4.6				
Green Ext Time (p_c), s	0.0	2.7		0.5	0.1	4.1		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		11.3
HCM 6th LOS		B

Notes

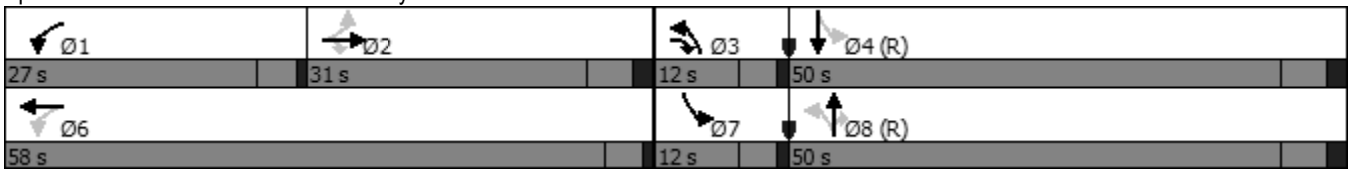
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	3	16	254	329	31	235	423	256	26	803
Future Volume (vph)	3	16	254	329	31	235	423	256	26	803
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	9.5	9.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	31.0	31.0	12.0	27.0	58.0	12.0	50.0	50.0	12.0	50.0
Total Split (%)	25.8%	25.8%	10.0%	22.5%	48.3%	10.0%	41.7%	41.7%	10.0%	41.7%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.1	25.9	33.6	33.6	76.5	69.1	69.1	62.1	54.3
Actuated g/C Ratio		0.08	0.22	0.28	0.28	0.64	0.58	0.58	0.52	0.45
v/c Ratio		0.14	0.64	0.86	0.11	0.59	0.23	0.28	0.05	0.55
Control Delay		48.8	29.6	57.9	17.9	25.8	21.9	8.8	10.7	20.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.8	29.6	57.9	17.9	25.8	21.9	8.8	10.7	20.9
LOS		D	C	E	B	C	C	A	B	C
Approach Delay		30.9			52.5		19.2			20.6
Approach LOS		C			D		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

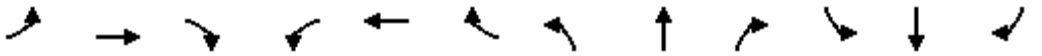
Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	276	358	56	255	460	278	28	880
v/c Ratio	0.14	0.64	0.86	0.11	0.59	0.23	0.28	0.05	0.55
Control Delay	48.8	29.6	57.9	17.9	25.8	21.9	8.8	10.7	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	29.6	57.9	17.9	25.8	21.9	8.8	10.7	20.9
Queue Length 50th (ft)	15	107	246	19	118	127	16	7	146
Queue Length 95th (ft)	34	179	273	39	#322	204	92	m21	384
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	364	429	420	789	433	2038	1004	530	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.64	0.85	0.07	0.59	0.23	0.28	0.05	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	16	254	329	31	20	235	423	256	26	803	6
Future Volume (veh/h)	3	16	254	329	31	20	235	423	256	26	803	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	17	276	358	34	22	255	460	278	28	873	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	306	389	562	421	272	368	1563	692	361	1455	12
Arrive On Green	0.18	0.18	0.18	0.18	0.40	0.40	0.06	0.44	0.44	0.05	0.81	0.81
Sat Flow, veh/h	152	1658	1572	1781	1059	685	1781	3554	1574	1781	3613	29
Grp Volume(v), veh/h	20	0	276	358	0	56	255	460	278	28	429	451
Grp Sat Flow(s),veh/h/ln	1810	0	1572	1781	0	1744	1781	1777	1574	1781	1777	1865
Q Serve(g_s), s	0.0	0.0	19.2	18.8	0.0	2.4	7.5	10.0	14.4	1.1	10.9	10.9
Cycle Q Clear(g_c), s	1.1	0.0	19.2	18.8	0.0	2.4	7.5	10.0	14.4	1.1	10.9	10.9
Prop In Lane	0.15		1.00	1.00		0.39	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	369	0	389	562	0	693	368	1563	692	361	715	751
V/C Ratio(X)	0.05	0.00	0.71	0.64	0.00	0.08	0.69	0.29	0.40	0.08	0.60	0.60
Avail Cap(c_a), veh/h	410	0	427	584	0	778	368	1563	692	428	715	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	0.95	0.95	0.95
Uniform Delay (d), s/veh	40.3	0.0	41.3	29.2	0.0	22.5	23.8	21.6	22.9	19.6	8.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	4.9	2.2	0.0	0.0	4.8	0.4	1.5	0.1	3.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	7.9	8.3	0.0	1.0	2.8	4.2	5.5	0.4	3.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	0.0	46.1	31.4	0.0	22.6	28.6	22.0	24.4	19.6	11.6	11.4
LnGrp LOS	D	A	D	C	A	C	C	C	C	B	B	B
Approach Vol, veh/h		296			414			993			908	
Approach Delay, s/veh		45.7			30.2			24.4			11.7	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	25.5	28.1	12.0	54.3		53.7	7.5	58.8				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	22.5	25.0	7.5	44.0		* 54	7.5	44.0				
Max Q Clear Time (g_c+I1), s	20.8	21.2	9.5	12.9		4.4	3.1	16.4				
Green Ext Time (p_c), s	0.2	0.4	0.0	6.1		0.3	0.0	4.2				

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

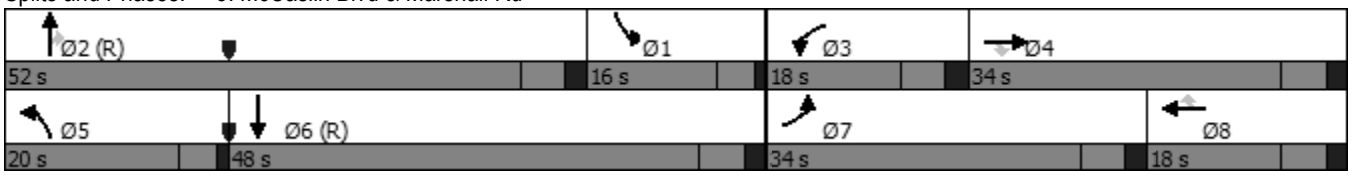
User approved pedestrian interval to be less than phase max green.

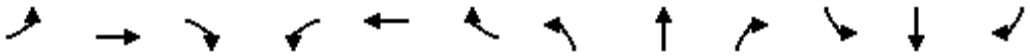
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	918	49	455	77	46	42	192	564	50	89	978	674
Future Volume (vph)	918	49	455	77	46	42	192	564	50	89	978	674
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	34.0	34.0	34.0	18.0	18.0	18.0	20.0	52.0	52.0	16.0	48.0	
Total Split (%)	28.3%	28.3%	28.3%	15.0%	15.0%	15.0%	16.7%	43.3%	43.3%	13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	31.6	31.6	32.3	10.2	10.7	10.7	12.5	46.0	46.0	11.5	45.0	120.0
Actuated g/C Ratio	0.26	0.26	0.27	0.08	0.09	0.09	0.10	0.38	0.38	0.10	0.38	1.00
v/c Ratio	0.82	0.82	0.74	0.56	0.30	0.13	0.59	0.31	0.08	0.30	0.56	0.46
Control Delay	58.4	65.1	16.5	66.6	55.2	0.8	57.8	26.5	0.2	53.1	31.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	65.1	16.5	66.6	55.2	0.8	57.8	26.5	0.2	53.1	31.3	1.0
LOS	E	E	B	E	E	A	E	C	A	D	C	A
Approach Delay		46.5			46.6			32.4			20.7	
Approach LOS		D			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 32.9	Intersection LOS: C
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd



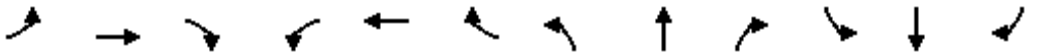


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	699	352	495	84	50	46	209	613	54	97	1063	733
v/c Ratio	0.82	0.82	0.74	0.56	0.30	0.13	0.59	0.31	0.08	0.30	0.56	0.46
Control Delay	58.4	65.1	16.5	66.6	55.2	0.8	57.8	26.5	0.2	53.1	31.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	65.1	16.5	66.6	55.2	0.8	57.8	26.5	0.2	53.1	31.3	1.0
Queue Length 50th (ft)	288	290	35	63	36	0	80	120	0	36	236	0
Queue Length 95th (ft)	m#420	m#489	m184	116	77	0	118	152	0	64	294	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	848	428	672	177	186	364	443	1949	716	328	1907	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.82	0.74	0.47	0.27	0.13	0.47	0.31	0.08	0.30	0.56	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	918	49	455	77	46	42	192	564	50	89	978	674
Future Volume (veh/h)	918	49	455	77	46	42	192	564	50	89	978	674
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1036	0	495	84	50	46	209	613	0	97	1063	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1162	0	367	107	141	118	272	1957		427	2250	
Arrive On Green	0.22	0.00	0.23	0.06	0.08	0.08	0.08	0.38	0.00	0.12	0.44	0.00
Sat Flow, veh/h	5344	0	1575	1781	1870	1554	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	1036	0	495	84	50	46	209	613	0	97	1063	0
Grp Sat Flow(s),veh/h/ln	1781	0	1575	1781	1870	1554	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	22.6	0.0	28.0	5.6	3.0	2.6	7.1	10.1	0.0	3.0	17.7	0.0
Cycle Q Clear(g_c), s	22.6	0.0	28.0	5.6	3.0	2.6	7.1	10.1	0.0	3.0	17.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1162	0	367	107	141	118	272	1957		427	2250	
V/C Ratio(X)	0.89	0.00	1.35	0.79	0.35	0.39	0.77	0.31		0.23	0.47	
Avail Cap(c_a), veh/h	1247	0	367	178	187	155	446	1957		427	2250	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.00	0.72	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.6	0.0	46.0	55.7	52.7	30.4	54.2	25.9	0.0	47.4	23.7	0.0
Incr Delay (d2), s/veh	6.0	0.0	168.8	12.1	1.5	2.1	4.5	0.4	0.0	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	0.0	28.0	2.8	1.5	1.4	3.3	4.2	0.0	1.3	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	0.0	214.8	67.7	54.2	32.5	58.7	26.3	0.0	47.7	24.4	0.0
LnGrp LOS	D	A	F	E	D	C	E	C		D	C	
Approach Vol, veh/h		1531			180			822			1160	
Approach Delay, s/veh		104.4			55.0			34.6			26.4	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	52.0	13.2	34.0	14.0	58.9	32.1	15.1
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	11.5	* 46	12.0	28.0	15.5	42.0	28.0	12.0
Max Q Clear Time (g_c+I1), s	5.0	12.1	7.6	30.0	9.1	19.7	24.6	5.0
Green Ext Time (p_c), s	0.1	4.8	0.1	0.0	0.3	8.1	1.5	0.1

Intersection Summary	
HCM 6th Ctrl Delay	61.9
HCM 6th LOS	E

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	6	22	21	8	0	25	34	25	1	27	26
Future Vol, veh/h	18	6	22	21	8	0	25	34	25	1	27	26
Peak Hour Factor	0.73	0.92	0.73	0.92	0.92	0.92	0.67	0.67	0.92	0.92	0.75	0.75
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	25	7	30	23	9	0	37	51	27	1	36	35
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

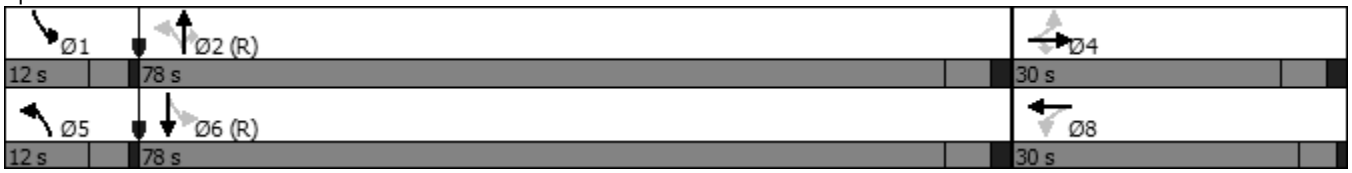
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.7	7.7	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	39%	72%	2%
Vol Thru, %	40%	13%	28%	50%
Vol Right, %	30%	48%	0%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	84	46	29	54
LT Vol	25	18	21	1
Through Vol	34	6	8	27
RT Vol	25	22	0	26
Lane Flow Rate	115	61	32	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.128	0.069	0.039	0.078
Departure Headway (Hd)	3.998	4.037	4.45	3.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	874	793	908
Service Time	2.059	2.124	2.541	1.971
HCM Lane V/C Ratio	0.13	0.07	0.04	0.079
HCM Control Delay	7.7	7.4	7.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.1	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	23	35	10	59	312	30	20	190
Future Volume (vph)	5	23	35	10	59	312	30	20	190
Turn Type	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	4			8	5	2		1	6
Permitted Phases		4	8		2		2	6	
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.0	24.0		25.5	83.4	77.6	77.6	81.2	74.9
Actuated g/C Ratio	0.20	0.20		0.21	0.70	0.65	0.65	0.68	0.62
v/c Ratio	0.01	0.07		0.12	0.08	0.15	0.03	0.03	0.09
Control Delay	38.8	0.3		27.6	2.2	3.4	0.1	5.3	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	0.3		27.6	2.2	3.4	0.1	5.3	9.7
LOS	D	A		C	A	A	A	A	A
Approach Delay	6.8			27.6		2.9			9.3
Approach LOS	A			C		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.15	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	5	25	72	64	339	33	22	207
v/c Ratio	0.01	0.07	0.12	0.08	0.15	0.03	0.03	0.09
Control Delay	38.8	0.3	27.6	2.2	3.4	0.1	5.3	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	0.3	27.6	2.2	3.4	0.1	5.3	9.7
Queue Length 50th (ft)	3	0	16	4	15	0	4	33
Queue Length 95th (ft)	15	0	36	7	20	0	12	51
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	615	826	2287	1018	744	2207
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.07	0.12	0.08	0.15	0.03	0.03	0.09

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	23	35	10	21	59	312	30	20	190	0
Future Volume (veh/h)	0	5	23	35	10	21	59	312	30	20	190	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	5	25	38	11	23	64	339	33	22	207	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	159	134	162	44	98	976	2686	1195	846	2633	0
Arrive On Green	0.00	0.08	0.08	0.08	0.08	0.08	0.07	1.00	1.00	0.02	0.74	0.00
Sat Flow, veh/h	0	1870	1579	1232	517	1155	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	5	25	42	0	30	64	339	33	22	207	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1415	0	1489	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.3	1.8	3.1	0.0	2.2	1.0	0.0	0.0	0.4	1.9	0.0
Cycle Q Clear(g_c), s	0.0	0.3	1.8	3.4	0.0	2.2	1.0	0.0	0.0	0.4	1.9	0.0
Prop In Lane	0.00		1.00	0.90		0.78	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	159	134	177	0	127	976	2686	1195	846	2633	0
V/C Ratio(X)	0.00	0.03	0.19	0.24	0.00	0.23	0.07	0.13	0.03	0.03	0.08	0.00
Avail Cap(c_a), veh/h	0	374	316	357	0	316	1022	2686	1195	919	2633	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	50.4	51.0	51.8	0.0	51.3	3.0	0.0	0.0	3.4	4.3	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.7	0.7	0.0	0.9	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.7	1.2	0.0	0.9	0.3	0.0	0.0	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	50.5	51.7	52.5	0.0	52.2	3.0	0.1	0.0	3.4	4.3	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		30			72			436			229	
Approach Delay, s/veh		51.5			52.4			0.5			4.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	96.7		16.2	8.9	94.9		16.2				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.4	2.0		3.8	3.0	3.9		5.4				
Green Ext Time (p_c), s	0.0	2.5		0.1	0.0	1.4		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		8.5
HCM 6th LOS		A

Notes

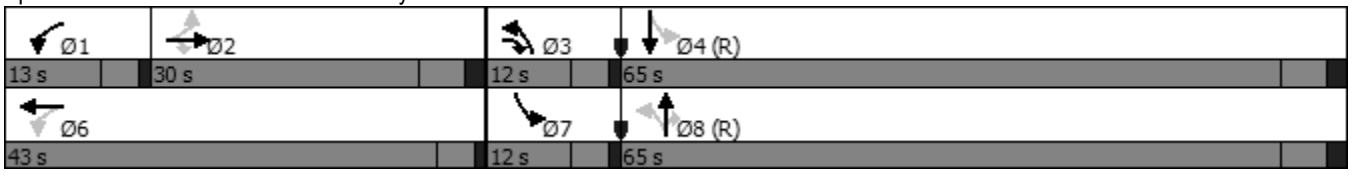
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	11	202	112	7	95	386	131	6	248
Future Volume (vph)	10	11	202	112	7	95	386	131	6	248
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	30.0	30.0	12.0	13.0	43.0	12.0	65.0	65.0	12.0	65.0
Total Split (%)	25.0%	25.0%	10.0%	10.8%	35.8%	10.0%	54.2%	54.2%	10.0%	54.2%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.1	15.7	19.9	19.9	90.5	87.5	87.5	85.4	78.2
Actuated g/C Ratio		0.08	0.13	0.17	0.17	0.75	0.73	0.73	0.71	0.65
v/c Ratio		0.17	0.56	0.57	0.05	0.13	0.16	0.12	0.01	0.12
Control Delay		50.3	10.1	52.6	24.1	3.8	4.7	0.4	6.2	7.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		50.3	10.1	52.6	24.1	3.8	4.7	0.4	6.2	7.6
LOS		D	B	D	C	A	A	A	A	A
Approach Delay		13.9			49.5		3.6			7.6
Approach LOS		B			D		A			A

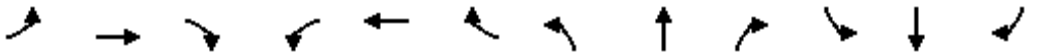
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	220	122	15	103	420	142	7	275
v/c Ratio	0.17	0.56	0.57	0.05	0.13	0.16	0.12	0.01	0.12
Control Delay	50.3	10.1	52.6	24.1	3.8	4.7	0.4	6.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	10.1	52.6	24.1	3.8	4.7	0.4	6.2	7.6
Queue Length 50th (ft)	17	0	84	5	11	26	0	1	28
Queue Length 95th (ft)	38	56	118	20	38	81	6	6	47
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	313	404	213	560	819	2579	1164	734	2298
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.54	0.57	0.03	0.13	0.16	0.12	0.01	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	11	202	112	7	6	95	386	131	6	248	5
Future Volume (veh/h)	10	11	202	112	7	6	95	386	131	6	248	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	12	220	122	8	7	103	420	142	7	270	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	148	307	351	241	211	680	2102	936	530	1998	37
Arrive On Green	0.15	0.15	0.15	0.07	0.26	0.26	0.04	0.59	0.59	0.00	0.18	0.18
Sat Flow, veh/h	678	960	1579	1781	919	804	1781	3554	1582	1781	3569	66
Grp Volume(v), veh/h	23	0	220	122	0	15	103	420	142	7	134	141
Grp Sat Flow(s),veh/h/ln	1638	0	1579	1781	0	1723	1781	1777	1582	1781	1777	1858
Q Serve(g_s), s	0.0	0.0	15.7	6.7	0.0	0.8	2.9	6.6	4.8	0.2	7.6	7.6
Cycle Q Clear(g_c), s	1.3	0.0	15.7	6.7	0.0	0.8	2.9	6.6	4.8	0.2	7.6	7.6
Prop In Lane	0.48		1.00	1.00		0.47	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	297	0	307	351	0	452	680	2102	936	530	995	1040
V/C Ratio(X)	0.08	0.00	0.72	0.35	0.00	0.03	0.15	0.20	0.15	0.01	0.13	0.14
Avail Cap(c_a), veh/h	371	0	380	351	0	553	719	2102	936	626	995	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	45.3	37.1	0.0	32.9	10.0	11.4	11.0	11.3	24.6	24.6
Incr Delay (d2), s/veh	0.1	0.0	4.9	0.6	0.0	0.0	0.1	0.2	0.3	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.5	3.0	0.0	0.3	1.1	2.6	1.7	0.1	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	0.0	50.1	37.7	0.0	33.0	10.1	11.5	11.3	11.3	24.9	24.9
LnGrp LOS	D	A	D	D	A	C	B	B	B	B	C	C
Approach Vol, veh/h		243			137			665			282	
Approach Delay, s/veh		49.5			37.2			11.3			24.6	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	13.0	24.5	9.3	73.2		37.5	5.5	77.0				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	8.5	24.0	7.5	59.0		* 39	7.5	59.0				
Max Q Clear Time (g_c+I1), s	8.7	17.7	4.9	9.6		2.8	2.2	8.6				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.6		0.0	0.0	3.5				

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Notes

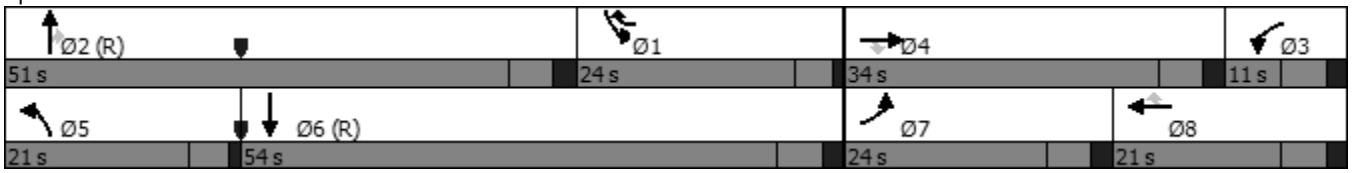
User approved pedestrian interval to be less than phase max green.

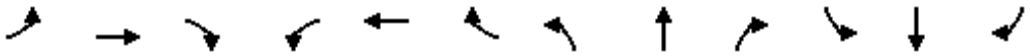
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	487	25	90	42	24	104	236	1163	98	216	1166	397
Future Volume (vph)	487	25	90	42	24	104	236	1163	98	216	1166	397
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	21.0	21.0	11.0	21.0	22.0	9.5	11.0	11.0	22.0	11.0	
Total Split (s)	24.0	34.0	34.0	11.0	21.0	24.0	21.0	51.0	51.0	24.0	54.0	
Total Split (%)	20.0%	28.3%	28.3%	9.2%	17.5%	20.0%	17.5%	42.5%	42.5%	20.0%	45.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.5	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Ped	Ped	None	Ped	Ped	None	C-Max	C-Max	Ped	C-Max	
Act Effct Green (s)	16.9	30.2	30.2	5.0	16.1	37.1	13.9	45.0	45.0	19.5	50.6	120.0
Actuated g/C Ratio	0.14	0.25	0.25	0.04	0.13	0.31	0.12	0.38	0.38	0.16	0.42	1.00
v/c Ratio	0.75	0.06	0.19	0.32	0.10	0.20	0.65	0.66	0.15	0.42	0.59	0.27
Control Delay	59.7	41.6	4.6	62.1	47.8	3.3	58.3	33.3	0.5	47.8	28.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	41.6	4.6	62.1	47.8	3.3	58.3	33.3	0.5	47.8	28.5	0.4
LOS	E	D	A	E	D	A	E	C	A	D	C	A
Approach Delay		50.7			24.2			35.1			24.6	
Approach LOS		D			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 32.3	Intersection LOS: C
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd

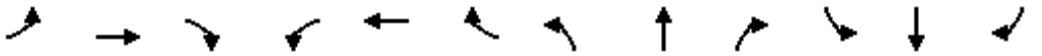




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	529	27	98	46	26	113	257	1264	107	235	1267	432
v/c Ratio	0.75	0.06	0.19	0.32	0.10	0.20	0.65	0.66	0.15	0.42	0.59	0.27
Control Delay	59.7	41.6	4.6	62.1	47.8	3.3	58.3	33.3	0.5	47.8	28.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	41.6	4.6	62.1	47.8	3.3	58.3	33.3	0.5	47.8	28.5	0.4
Queue Length 50th (ft)	144	18	1	18	18	0	99	295	0	85	273	0
Queue Length 95th (ft)	186	m40	12	38	46	23	140	347	0	126	334	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	748	468	525	143	250	570	472	1906	705	557	2143	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.06	0.19	0.32	0.10	0.20	0.54	0.66	0.15	0.42	0.59	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	487	25	90	42	24	104	236	1163	98	216	1166	397
Future Volume (veh/h)	487	25	90	42	24	104	236	1163	98	216	1166	397
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	529	27	0	46	26	113	257	1264	0	235	1267	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	633	253		399	234	472	322	1915		602	2392	
Arrive On Green	0.13	0.14	0.00	0.12	0.12	0.12	0.09	0.38	0.00	0.17	0.47	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1574	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	529	27	0	46	26	113	257	1264	0	235	1267	0
Grp Sat Flow(s),veh/h/ln	1674	1870	1585	1728	1870	1574	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	12.3	1.5	0.0	1.4	1.5	1.6	8.7	24.7	0.0	7.2	21.0	0.0
Cycle Q Clear(g_c), s	12.3	1.5	0.0	1.4	1.5	1.6	8.7	24.7	0.0	7.2	21.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	633	253		399	234	472	322	1915		602	2392	
V/C Ratio(X)	0.84	0.11		0.12	0.11	0.24	0.80	0.66		0.39	0.53	
Avail Cap(c_a), veh/h	753	436		399	234	473	475	1915		602	2392	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.2	45.5	0.0	47.6	46.6	13.7	53.3	31.1	0.0	43.9	22.5	0.0
Incr Delay (d2), s/veh	6.6	0.2	0.0	0.1	0.2	0.3	5.9	1.8	0.0	0.4	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.7	0.0	0.6	0.7	1.4	4.1	10.4	0.0	3.1	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	45.7	0.0	47.7	46.8	13.9	59.2	33.0	0.0	44.3	23.4	0.0
LnGrp LOS	E	D		D	D	B	E	C		D	C	
Approach Vol, veh/h		556			185			1521			1502	
Approach Delay, s/veh		57.3			26.9			37.4			26.7	
Approach LOS		E			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.9	51.0	19.8	22.3	15.7	62.2	21.1	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.5	* 45	5.0	28.0	16.5	48.0	18.0	15.0
Max Q Clear Time (g_c+I1), s	9.2	26.7	3.4	3.5	10.7	23.0	14.3	3.6
Green Ext Time (p_c), s	0.6	8.9	0.0	0.1	0.4	10.4	0.8	0.3

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

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

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

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

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	11	13	2	2	0	13	11	10	0	10	8
Future Vol, veh/h	8	11	13	2	2	0	13	11	10	0	10	8
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.69	0.69	0.69
Heavy Vehicles, %	10	10	10	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	13	16	8	8	0	15	13	11	0	14	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

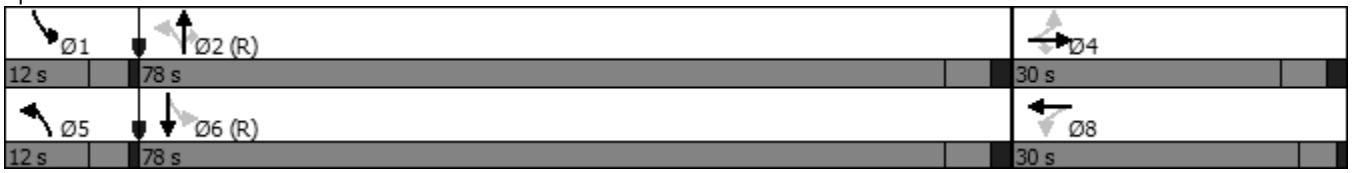
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.2	7.1	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	25%	50%	0%
Vol Thru, %	32%	34%	50%	56%
Vol Right, %	29%	41%	0%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	32	4	18
LT Vol	13	8	2	0
Through Vol	11	11	2	10
RT Vol	10	13	0	8
Lane Flow Rate	39	39	16	26
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.043	0.018	0.027
Departure Headway (Hd)	3.913	3.999	4.14	3.756
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	914	895	863	951
Service Time	1.942	2.026	2.172	1.788
HCM Lane V/C Ratio	0.043	0.044	0.019	0.027
HCM Control Delay	7.1	7.2	7.2	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	22	206	42	37	238	301	39	47	669
Future Volume (vph)	1	22	206	42	37	238	301	39	47	669
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		24.0	24.0		25.5	82.5	75.0	75.0	80.0	72.0
Actuated g/C Ratio		0.20	0.20		0.21	0.69	0.62	0.62	0.67	0.60
v/c Ratio		0.07	0.45		0.20	0.53	0.15	0.04	0.07	0.35
Control Delay		39.7	8.4		26.8	16.4	1.7	0.2	5.5	12.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.7	8.4		26.8	16.4	1.7	0.2	5.5	12.6
LOS		D	A		C	B	A	A	A	B
Approach Delay		11.5			26.8		7.7			12.2
Approach LOS		B			C		A			B

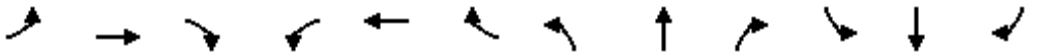
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 83.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	224	128	259	327	42	51	735
v/c Ratio	0.07	0.45	0.20	0.53	0.15	0.04	0.07	0.35
Control Delay	39.7	8.4	26.8	16.4	1.7	0.2	5.5	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	8.4	26.8	16.4	1.7	0.2	5.5	12.6
Queue Length 50th (ft)	16	0	28	36	4	0	10	142
Queue Length 95th (ft)	41	66	56	173	5	0	22	180
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	369	495	638	490	2212	982	737	2120
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.45	0.20	0.53	0.15	0.04	0.07	0.35

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	22	206	42	37	39	238	301	39	47	669	7
Future Volume (veh/h)	1	22	206	42	37	39	238	301	39	47	669	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	24	224	46	40	42	259	327	42	51	727	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	392	336	228	196	222	675	2840	1261	912	2819	31
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.10	1.00	1.00	0.03	0.78	0.78
Sat Flow, veh/h	17	1846	1581	837	921	1047	1781	3554	1578	1781	3600	40
Grp Volume(v), veh/h	25	0	224	67	0	61	259	327	42	51	359	376
Grp Sat Flow(s),veh/h/ln	1863	0	1581	1296	0	1510	1781	1777	1578	1781	1777	1863
Q Serve(g_s), s	0.0	0.0	15.6	3.9	0.0	3.9	3.9	0.0	0.0	0.6	6.6	6.6
Cycle Q Clear(g_c), s	1.3	0.0	15.6	5.1	0.0	3.9	3.9	0.0	0.0	0.6	6.6	6.6
Prop In Lane	0.04		1.00	0.68		0.69	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	427	0	336	326	0	321	675	2840	1261	912	1391	1459
V/C Ratio(X)	0.06	0.00	0.67	0.21	0.00	0.19	0.38	0.12	0.03	0.06	0.26	0.26
Avail Cap(c_a), veh/h	427	0	336	326	0	321	696	2840	1261	962	1391	1459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	43.4	39.2	0.0	38.8	2.2	0.0	0.0	2.1	3.5	3.5
Incr Delay (d2), s/veh	0.3	0.0	10.1	1.4	0.0	1.3	0.3	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.1	1.8	0.0	1.6	0.7	0.0	0.0	0.2	2.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	53.4	40.6	0.0	40.1	2.5	0.1	0.0	2.1	4.0	4.0
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		249			128			628			786	
Approach Delay, s/veh		51.9			40.4			1.1			3.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	101.9		31.5	10.5	100.0		31.5				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.6	2.0		17.6	5.9	8.6		7.1				
Green Ext Time (p_c), s	0.0	2.4		0.5	0.1	5.1		0.7				

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

Notes

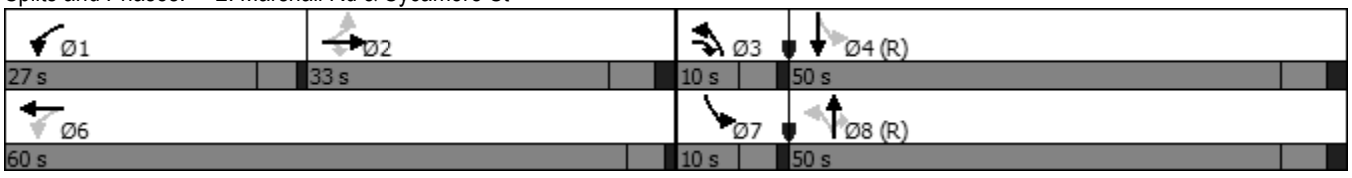
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	4	18	253	335	34	239	554	202	28	926
Future Volume (vph)	4	18	253	335	34	239	554	202	28	926
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	9.5	9.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	33.0	33.0	10.0	27.0	60.0	10.0	50.0	50.0	10.0	50.0
Total Split (%)	27.5%	27.5%	8.3%	22.5%	50.0%	8.3%	41.7%	41.7%	8.3%	41.7%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.7	33.8	34.2	34.2	75.9	68.9	68.9	53.7	46.3
Actuated g/C Ratio		0.09	0.28	0.28	0.28	0.63	0.57	0.57	0.45	0.39
v/c Ratio		0.16	0.53	0.86	0.12	0.59	0.30	0.23	0.07	0.74
Control Delay		48.5	24.9	57.3	18.0	33.0	12.3	0.9	11.4	28.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.5	24.9	57.3	18.0	33.0	12.3	0.9	11.4	28.4
LOS		D	C	E	B	C	B	A	B	C
Approach Delay		26.8			51.8		15.0			27.9
Approach LOS		C			D		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 77.2%	ICU Level of Service D
Analysis Period (min) 15	

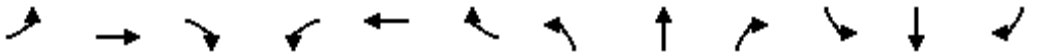
Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	275	364	59	260	602	220	30	1015
v/c Ratio	0.16	0.53	0.86	0.12	0.59	0.30	0.23	0.07	0.74
Control Delay	48.5	24.9	57.3	18.0	33.0	12.3	0.9	11.4	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	24.9	57.3	18.0	33.0	12.3	0.9	11.4	28.4
Queue Length 50th (ft)	18	103	250	21	101	91	0	7	364
Queue Length 95th (ft)	38	185	269	40	m#397	201	m16	m22	458
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	390	519	426	820	444	2032	976	401	1365
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.53	0.85	0.07	0.59	0.30	0.23	0.07	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	18	253	335	34	20	239	554	202	28	926	7
Future Volume (veh/h)	4	18	253	335	34	20	239	554	202	28	926	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	20	275	364	37	22	260	602	220	30	1007	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	307	371	568	443	264	310	1536	680	317	1491	12
Arrive On Green	0.19	0.19	0.19	0.18	0.40	0.40	0.05	0.43	0.43	0.05	0.83	0.83
Sat Flow, veh/h	180	1618	1573	1781	1097	653	1781	3554	1574	1781	3613	29
Grp Volume(v), veh/h	24	0	275	364	0	59	260	602	220	30	495	520
Grp Sat Flow(s),veh/h/ln	1798	0	1573	1781	0	1750	1781	1777	1574	1781	1777	1865
Q Serve(g_s), s	0.0	0.0	19.4	19.0	0.0	2.5	5.5	13.9	11.1	1.1	13.2	13.2
Cycle Q Clear(g_c), s	1.3	0.0	19.4	19.0	0.0	2.5	5.5	13.9	11.1	1.1	13.2	13.2
Prop In Lane	0.17		1.00	1.00		0.37	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	376	0	371	568	0	707	310	1536	680	317	733	770
V/C Ratio(X)	0.06	0.00	0.74	0.64	0.00	0.08	0.84	0.39	0.32	0.09	0.68	0.68
Avail Cap(c_a), veh/h	438	0	426	587	0	809	310	1536	680	352	733	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	0.94	0.94	0.94
Uniform Delay (d), s/veh	39.9	0.0	42.5	28.8	0.0	22.1	31.8	23.3	22.5	19.2	7.3	7.3
Incr Delay (d2), s/veh	0.1	0.0	5.9	2.2	0.0	0.1	15.5	0.6	1.0	0.1	4.6	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	8.1	8.4	0.0	1.0	6.1	5.9	4.2	0.5	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	0.0	48.4	31.0	0.0	22.1	47.3	23.9	23.5	19.4	11.9	11.7
LnGrp LOS	D	A	D	C	A	C	D	C	C	B	B	B
Approach Vol, veh/h		299			423			1082			1045	
Approach Delay, s/veh		47.7			29.8			29.5			12.1	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	25.7	28.8	10.0	55.5		54.5	7.7	57.9				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	22.5	27.0	5.5	44.0		* 56	5.5	44.0				
Max Q Clear Time (g_c+I1), s	21.0	21.4	7.5	15.2		4.5	3.1	15.9				
Green Ext Time (p_c), s	0.2	0.5	0.0	7.3		0.3	0.0	5.1				

Intersection Summary												
HCM 6th Ctrl Delay			25.0									
HCM 6th LOS			C									

Notes

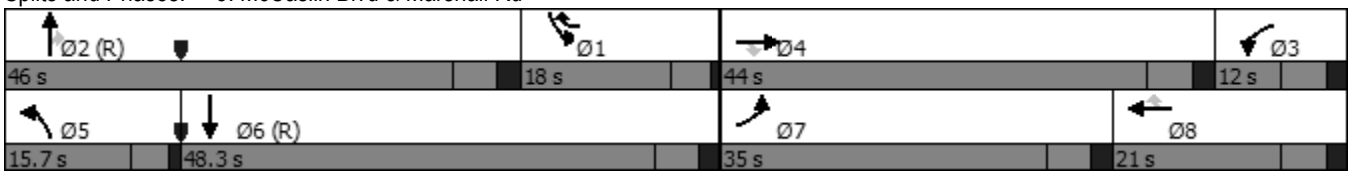
User approved pedestrian interval to be less than phase max green.

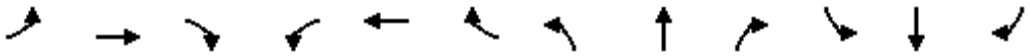
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	975	56	515	104	57	181	225	1377	67	270	1385	701
Future Volume (vph)	975	56	515	104	57	181	225	1377	67	270	1385	701
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	21.0	9.5	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	35.0	44.0	44.0	12.0	21.0	18.0	15.7	46.0	46.0	18.0	48.3	
Total Split (%)	29.2%	36.7%	36.7%	10.0%	17.5%	15.0%	13.1%	38.3%	38.3%	15.0%	40.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.5	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	30.1	33.0	33.0	7.8	15.0	26.7	11.0	43.1	43.1	13.5	45.6	120.0
Actuated g/C Ratio	0.25	0.28	0.28	0.06	0.12	0.22	0.09	0.36	0.36	0.11	0.38	1.00
v/c Ratio	0.85	0.12	0.93	0.50	0.27	0.44	0.78	0.82	0.11	0.76	0.78	0.48
Control Delay	43.7	25.5	38.2	63.0	50.9	10.7	70.6	40.3	0.3	65.2	37.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	25.5	38.2	63.0	50.9	10.7	70.6	40.3	0.3	65.2	37.2	1.0
LOS	D	C	D	E	D	B	E	D	A	E	D	A
Approach Delay		41.2			33.3			42.8			29.6	
Approach LOS		D			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 36.6	Intersection LOS: D
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd



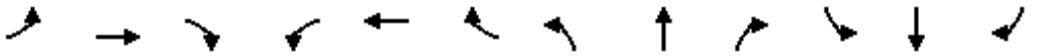


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1060	61	560	113	62	197	245	1497	73	293	1505	762
v/c Ratio	0.85	0.12	0.93	0.50	0.27	0.44	0.78	0.82	0.11	0.76	0.78	0.48
Control Delay	43.7	25.5	38.2	63.0	50.9	10.7	70.6	40.3	0.3	65.2	37.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	25.5	38.2	63.0	50.9	10.7	70.6	40.3	0.3	65.2	37.2	1.0
Queue Length 50th (ft)	298	33	274	44	44	24	96	399	0	115	390	0
Queue Length 95th (ft)	#352	m44	m#450	#85	88	58	#155	464	0	#173	453	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	1249	589	654	224	232	445	320	1828	684	386	1932	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.10	0.86	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	975	56	515	104	57	181	225	1377	67	270	1385	701
Future Volume (veh/h)	975	56	515	104	57	181	225	1377	67	270	1385	701
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1060	61	0	113	62	197	245	1497	0	293	1505	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1163	171		917	234	370	300	1702		380	1884	
Arrive On Green	0.23	0.09	0.00	0.27	0.12	0.12	0.09	0.33	0.00	0.11	0.37	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1566	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	1060	61	0	113	62	197	245	1497	0	293	1505	0
Grp Sat Flow(s),veh/h/ln	1674	1870	1585	1728	1870	1566	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	24.7	3.7	0.0	3.0	3.6	4.9	8.4	33.2	0.0	9.9	31.6	0.0
Cycle Q Clear(g_c), s	24.7	3.7	0.0	3.0	3.6	4.9	8.4	33.2	0.0	9.9	31.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1163	171		917	234	370	300	1702		380	1884	
V/C Ratio(X)	0.91	0.36		0.12	0.27	0.53	0.82	0.88		0.77	0.80	
Avail Cap(c_a), veh/h	1214	592		917	234	370	323	1702		389	1884	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.9	51.2	0.0	33.5	47.5	15.5	53.8	37.7	0.0	51.9	33.9	0.0
Incr Delay (d2), s/veh	6.6	0.8	0.0	0.1	0.6	1.5	14.1	6.9	0.0	9.0	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	1.8	0.0	1.3	1.7	2.3	4.2	14.7	0.0	4.8	13.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	52.0	0.0	33.5	48.1	17.0	67.9	44.6	0.0	60.9	37.5	0.0
LnGrp LOS	D	D		C	D	B	E	D		E	D	
Approach Vol, veh/h		1121			372			1742			1798	
Approach Delay, s/veh		51.5			27.2			47.9			41.3	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	46.0	37.8	17.0	14.9	50.3	33.8	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	13.5	* 40	6.0	38.0	11.2	42.3	29.0	15.0
Max Q Clear Time (g_c+I1), s	11.9	35.2	5.0	5.7	10.4	33.6	26.7	6.9
Green Ext Time (p_c), s	0.2	3.7	0.0	0.3	0.1	6.1	1.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

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

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

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

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	6	31	2	8	0	36	25	5	2	20	38
Future Vol, veh/h	25	6	31	2	8	0	36	25	5	2	20	38
Peak Hour Factor	0.73	0.73	0.73	0.50	0.50	0.50	0.67	0.67	0.67	0.75	0.75	0.75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	34	8	42	4	16	0	54	37	7	3	27	51
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

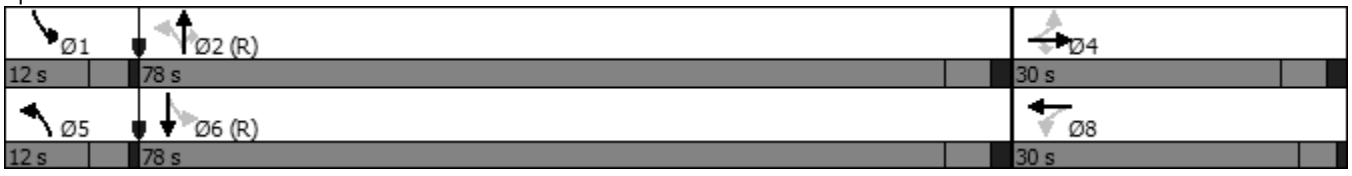
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.5	7.8	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	40%	20%	3%
Vol Thru, %	38%	10%	80%	33%
Vol Right, %	8%	50%	0%	63%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	66	62	10	60
LT Vol	36	25	2	2
Through Vol	25	6	8	20
RT Vol	5	31	0	38
Lane Flow Rate	99	85	20	80
Geometry Grp	1	1	1	1
Degree of Util (X)	0.115	0.094	0.024	0.084
Departure Headway (Hd)	4.207	4.004	4.316	3.784
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	882	816	934
Service Time	2.268	2.085	2.411	1.857
HCM Lane V/C Ratio	0.117	0.096	0.025	0.086
HCM Control Delay	7.8	7.5	7.5	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.1	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	7	23	35	13	59	312	30	22	190
Future Volume (vph)	7	23	35	13	59	312	30	22	190
Turn Type	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	4			8	5	2		1	6
Permitted Phases		4	8		2		2	6	
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Ped	Ped	Ped	Ped	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.0	24.0		25.5	83.3	77.6	77.6	81.2	74.9
Actuated g/C Ratio	0.20	0.20		0.21	0.69	0.65	0.65	0.68	0.62
v/c Ratio	0.02	0.07		0.12	0.08	0.15	0.03	0.03	0.09
Control Delay	39.0	0.3		27.3	2.0	3.3	0.3	5.3	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	0.3		27.3	2.0	3.3	0.3	5.3	9.7
LOS	D	A		C	A	A	A	A	A
Approach Delay	9.7			27.3		2.9			9.3
Approach LOS	A			C		A			A

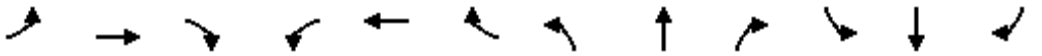
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.15	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	25	77	64	339	33	24	207
v/c Ratio	0.02	0.07	0.12	0.08	0.15	0.03	0.03	0.09
Control Delay	39.0	0.3	27.3	2.0	3.3	0.3	5.3	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	0.3	27.3	2.0	3.3	0.3	5.3	9.7
Queue Length 50th (ft)	5	0	17	4	25	0	5	33
Queue Length 95th (ft)	19	0	38	6	15	0	13	51
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	618	826	2287	1018	744	2207
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.07	0.12	0.08	0.15	0.03	0.03	0.09

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	7	23	35	13	23	59	312	30	22	190	0
Future Volume (veh/h)	0	7	23	35	13	23	59	312	30	22	190	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	8	25	38	14	25	64	339	33	24	207	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	160	135	154	52	99	975	2679	1192	848	2630	0
Arrive On Green	0.00	0.09	0.09	0.09	0.09	0.09	0.07	1.00	1.00	0.02	0.74	0.00
Sat Flow, veh/h	0	1870	1579	1156	605	1157	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	8	25	45	0	32	64	339	33	24	207	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1429	0	1489	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.5	1.8	3.1	0.0	2.4	1.0	0.0	0.0	0.4	1.9	0.0
Cycle Q Clear(g_c), s	0.0	0.5	1.8	3.6	0.0	2.4	1.0	0.0	0.0	0.4	1.9	0.0
Prop In Lane	0.00		1.00	0.85		0.78	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	160	135	178	0	127	975	2679	1192	848	2630	0
V/C Ratio(X)	0.00	0.05	0.18	0.25	0.00	0.25	0.07	0.13	0.03	0.03	0.08	0.00
Avail Cap(c_a), veh/h	0	374	316	359	0	316	1021	2679	1192	918	2630	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	50.4	51.0	51.8	0.0	51.3	3.0	0.0	0.0	3.4	4.3	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.7	0.7	0.0	1.0	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.7	1.3	0.0	1.0	0.3	0.0	0.0	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	50.5	51.6	52.5	0.0	52.3	3.0	0.1	0.0	3.4	4.4	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		33			77			436			231	
Approach Delay, s/veh		51.4			52.4			0.5			4.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	96.5		16.3	8.9	94.8		16.3				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.4	2.0		3.8	3.0	3.9		5.6				
Green Ext Time (p_c), s	0.0	2.5		0.1	0.0	1.4		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		8.9
HCM 6th LOS		A

Notes

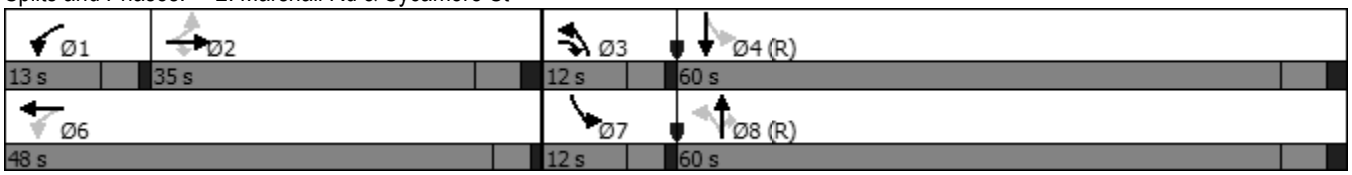
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	12	202	169	8	95	386	174	6	248
Future Volume (vph)	10	12	202	169	8	95	386	174	6	248
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	35.0	35.0	12.0	13.0	48.0	12.0	60.0	60.0	12.0	60.0
Total Split (%)	29.2%	29.2%	10.0%	10.8%	40.0%	10.0%	50.0%	50.0%	10.0%	50.0%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		11.2	16.7	20.9	20.9	89.4	86.4	86.4	84.3	77.1
Actuated g/C Ratio		0.09	0.14	0.17	0.17	0.74	0.72	0.72	0.70	0.64
v/c Ratio		0.16	0.54	0.82	0.05	0.13	0.16	0.16	0.01	0.12
Control Delay		48.1	9.2	70.7	23.4	4.4	5.4	0.4	7.2	8.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.1	9.2	70.7	23.4	4.4	5.4	0.4	7.2	8.6
LOS		D	A	E	C	A	A	A	A	A
Approach Delay		13.1			66.9		3.9			8.6
Approach LOS		B			E		A			A

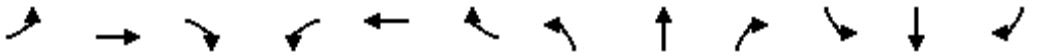
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 56.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	220	184	16	103	420	189	7	275
v/c Ratio	0.16	0.54	0.82	0.05	0.13	0.16	0.16	0.01	0.12
Control Delay	48.1	9.2	70.7	23.4	4.4	5.4	0.4	7.2	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	9.2	70.7	23.4	4.4	5.4	0.4	7.2	8.6
Queue Length 50th (ft)	18	0	132	6	11	26	0	1	32
Queue Length 95th (ft)	38	52	159	20	42	89	0	7	53
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	380	415	225	635	810	2548	1165	726	2267
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.53	0.82	0.03	0.13	0.16	0.16	0.01	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	12	202	169	8	6	95	386	174	6	248	5
Future Volume (veh/h)	10	12	202	169	8	6	95	386	174	6	248	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	13	220	184	9	7	103	420	189	7	270	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	158	313	354	259	202	676	2089	930	508	1985	37
Arrive On Green	0.16	0.16	0.16	0.07	0.27	0.27	0.04	0.59	0.59	0.00	0.18	0.18
Sat Flow, veh/h	648	999	1579	1781	974	758	1781	3554	1582	1781	3569	66
Grp Volume(v), veh/h	24	0	220	184	0	16	103	420	189	7	134	141
Grp Sat Flow(s),veh/h/ln	1648	0	1579	1781	0	1732	1781	1777	1582	1781	1777	1858
Q Serve(g_s), s	0.0	0.0	15.6	8.5	0.0	0.8	2.9	6.6	6.7	0.2	7.6	7.6
Cycle Q Clear(g_c), s	1.3	0.0	15.6	8.5	0.0	0.8	2.9	6.6	6.7	0.2	7.6	7.6
Prop In Lane	0.46		1.00	1.00		0.44	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	304	0	313	354	0	461	676	2089	930	508	988	1034
V/C Ratio(X)	0.08	0.00	0.70	0.52	0.00	0.03	0.15	0.20	0.20	0.01	0.14	0.14
Avail Cap(c_a), veh/h	439	0	446	354	0	628	715	2089	930	603	988	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	0.0	44.8	38.8	0.0	32.6	10.2	11.6	11.6	11.5	24.8	24.9
Incr Delay (d2), s/veh	0.1	0.0	2.9	1.3	0.0	0.0	0.1	0.2	0.4	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.3	0.1	0.0	0.4	1.1	2.6	2.4	0.1	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	0.0	47.7	40.2	0.0	32.7	10.3	11.8	12.0	11.5	25.1	25.1
LnGrp LOS	D	A	D	D	A	C	B	B	B	B	C	C
Approach Vol, veh/h		244			200			712			282	
Approach Delay, s/veh		47.3			39.6			11.6			24.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	13.0	24.9	9.3	72.7		37.9	5.5	76.5				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	8.5	29.0	7.5	54.0		* 44	7.5	54.0				
Max Q Clear Time (g_c+I1), s	10.5	17.6	4.9	9.6		2.8	2.2	8.7				
Green Ext Time (p_c), s	0.0	0.6	0.0	1.6		0.1	0.0	3.6				

Intersection Summary		
HCM 6th Ctrl Delay		24.1
HCM 6th LOS		C

Notes

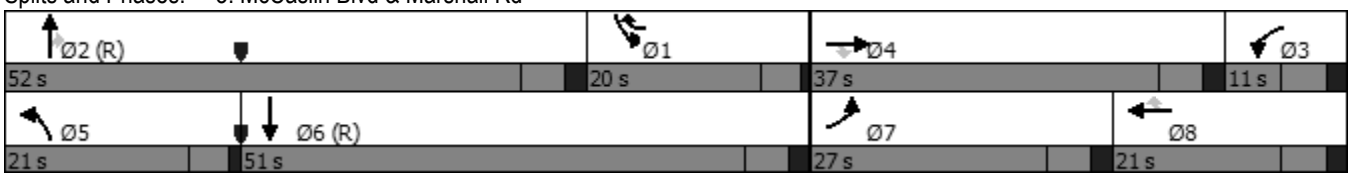
User approved pedestrian interval to be less than phase max green.

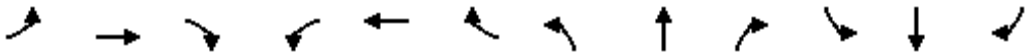
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	538	26	95	42	24	104	240	1163	98	216	1166	436
Future Volume (vph)	538	26	95	42	24	104	240	1163	98	216	1166	436
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	21.0	9.5	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	27.0	37.0	37.0	11.0	21.0	20.0	21.0	52.0	52.0	20.0	51.0	
Total Split (%)	22.5%	30.8%	30.8%	9.2%	17.5%	16.7%	17.5%	43.3%	43.3%	16.7%	42.5%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.5	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	19.0	13.6	13.6	14.3	15.0	25.4	14.0	56.4	56.4	15.5	57.9	120.0
Actuated g/C Ratio	0.16	0.11	0.11	0.12	0.12	0.21	0.12	0.47	0.47	0.13	0.48	1.00
v/c Ratio	0.74	0.13	0.31	0.11	0.11	0.26	0.65	0.53	0.13	0.53	0.52	0.30
Control Delay	60.1	52.3	6.7	47.1	48.0	4.2	58.4	25.5	0.3	53.7	24.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	52.3	6.7	47.1	48.0	4.2	58.4	25.5	0.3	53.7	24.9	0.5
LOS	E	D	A	D	D	A	E	C	A	D	C	A
Approach Delay		52.1			21.1			29.1			22.5	
Approach LOS		D			C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 29.5	Intersection LOS: C
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd

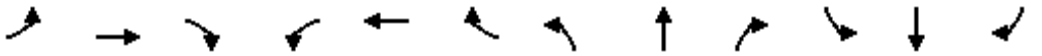




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	585	28	103	46	26	113	261	1264	107	235	1267	474
v/c Ratio	0.74	0.13	0.31	0.11	0.11	0.26	0.65	0.53	0.13	0.53	0.52	0.30
Control Delay	60.1	52.3	6.7	47.1	48.0	4.2	58.4	25.5	0.3	53.7	24.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	52.3	6.7	47.1	48.0	4.2	58.4	25.5	0.3	53.7	24.9	0.5
Queue Length 50th (ft)	160	22	7	14	18	0	100	283	0	89	279	0
Queue Length 95th (ft)	m201	m39	m13	38	46	24	142	342	0	131	349	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	873	481	534	408	232	430	472	2391	836	443	2454	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.06	0.19	0.11	0.11	0.26	0.55	0.53	0.13	0.53	0.52	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	538	26	95	42	24	104	240	1163	98	216	1166	436
Future Volume (veh/h)	538	26	95	42	24	104	240	1163	98	216	1166	436
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	585	28	0	46	26	113	261	1264	0	235	1267	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	702	117		698	234	437	326	1957		525	2316	
Arrive On Green	0.14	0.06	0.00	0.20	0.12	0.12	0.09	0.38	0.00	0.15	0.45	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1574	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	585	28	0	46	26	113	261	1264	0	235	1267	0
Grp Sat Flow(s),veh/h/ln	1674	1870	1585	1728	1870	1574	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	13.6	1.7	0.0	1.3	1.5	1.8	8.9	24.3	0.0	7.4	21.6	0.0
Cycle Q Clear(g_c), s	13.6	1.7	0.0	1.3	1.5	1.8	8.9	24.3	0.0	7.4	21.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	702	117		698	234	437	326	1957		525	2316	
V/C Ratio(X)	0.83	0.24		0.07	0.11	0.26	0.80	0.65		0.45	0.55	
Avail Cap(c_a), veh/h	879	483		698	234	438	475	1957		525	2316	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.3	53.5	0.0	38.7	46.6	14.5	53.2	30.3	0.0	46.3	23.8	0.0
Incr Delay (d2), s/veh	5.1	0.9	0.0	0.0	0.2	0.3	6.1	1.7	0.0	0.6	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.8	0.0	0.6	0.7	1.4	4.1	10.2	0.0	3.2	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	54.5	0.0	38.8	46.8	14.8	59.4	32.0	0.0	46.9	24.8	0.0
LnGrp LOS	E	D		D	D	B	E	C		D	C	
Approach Vol, veh/h		613			185			1525			1502	
Approach Delay, s/veh		55.3			25.2			36.7			28.2	
Approach LOS		E			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.2	52.0	30.2	13.5	15.8	60.4	22.8	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	15.5	* 46	5.0	31.0	16.5	45.0	21.0	15.0
Max Q Clear Time (g_c+I1), s	9.4	26.3	3.3	3.7	10.9	23.6	15.6	3.8
Green Ext Time (p_c), s	0.4	9.2	0.0	0.1	0.4	9.7	1.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

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

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

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

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	13	14	22	5	0	14	30	26	0	38	10
Future Vol, veh/h	9	13	14	22	5	0	14	30	26	0	38	10
Peak Hour Factor	0.83	0.92	0.83	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.69	0.69
Heavy Vehicles, %	10	2	10	2	2	2	0	0	2	2	0	0
Mvmt Flow	11	14	17	24	5	0	16	34	28	0	55	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

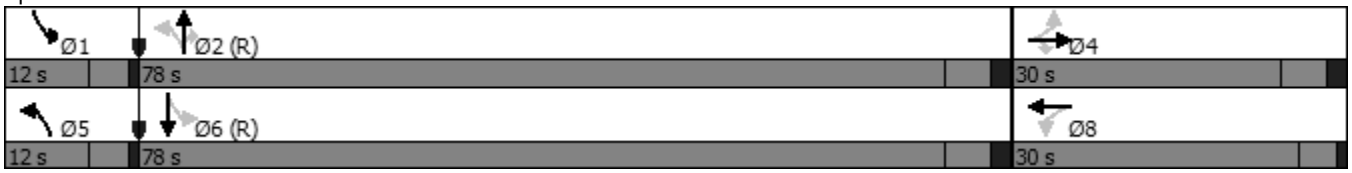
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.6	7.3	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	25%	81%	0%
Vol Thru, %	43%	36%	19%	79%
Vol Right, %	37%	39%	0%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	36	27	48
LT Vol	14	9	22	0
Through Vol	30	13	5	38
RT Vol	26	14	0	10
Lane Flow Rate	78	42	29	70
Geometry Grp	1	1	1	1
Degree of Util (X)	0.085	0.048	0.036	0.076
Departure Headway (Hd)	3.893	4.166	4.386	3.958
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	913	852	809	898
Service Time	1.946	2.23	2.452	2.012
HCM Lane V/C Ratio	0.085	0.049	0.036	0.078
HCM Control Delay	7.3	7.4	7.6	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	25	206	42	40	238	301	39	49	669
Future Volume (vph)	1	25	206	42	40	238	301	39	49	669
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	14.5	14.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	12.0	78.0	78.0	12.0	78.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.0%	65.0%	65.0%	10.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		24.0	24.0		25.5	82.5	75.0	75.0	80.0	72.0
Actuated g/C Ratio		0.20	0.20		0.21	0.69	0.62	0.62	0.67	0.60
v/c Ratio		0.08	0.45		0.21	0.53	0.15	0.04	0.07	0.35
Control Delay		39.8	8.4		27.0	16.4	1.7	0.2	5.5	12.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.8	8.4		27.0	16.4	1.7	0.2	5.5	12.6
LOS		D	A		C	B	A	A	A	B
Approach Delay		11.9			27.0		7.7			12.2
Approach LOS		B			C		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 83.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Marshall Rd & Center Dr



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	28	224	132	259	327	42	53	735
v/c Ratio	0.08	0.45	0.21	0.53	0.15	0.04	0.07	0.35
Control Delay	39.8	8.4	27.0	16.4	1.7	0.2	5.5	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	8.4	27.0	16.4	1.7	0.2	5.5	12.6
Queue Length 50th (ft)	18	0	29	36	4	0	11	142
Queue Length 95th (ft)	44	66	57	172	5	0	23	180
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	370	495	641	489	2211	981	737	2120
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.45	0.21	0.53	0.15	0.04	0.07	0.35

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	25	206	42	40	40	238	301	39	49	669	7
Future Volume (veh/h)	1	25	206	42	40	40	238	301	39	49	669	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	27	224	46	43	43	259	327	42	53	727	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	393	336	223	204	221	675	2838	1260	912	2819	31
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.10	1.00	1.00	0.03	0.78	0.78
Sat Flow, veh/h	14	1850	1581	814	962	1038	1781	3554	1578	1781	3600	40
Grp Volume(v), veh/h	28	0	224	69	0	63	259	327	42	53	359	376
Grp Sat Flow(s),veh/h/ln	1864	0	1581	1302	0	1512	1781	1777	1578	1781	1777	1863
Q Serve(g_s), s	0.0	0.0	15.6	3.9	0.0	4.1	3.9	0.0	0.0	0.7	6.6	6.6
Cycle Q Clear(g_c), s	1.4	0.0	15.6	5.3	0.0	4.1	3.9	0.0	0.0	0.7	6.6	6.6
Prop In Lane	0.04		1.00	0.66		0.69	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	427	0	336	327	0	321	675	2838	1260	912	1391	1459
V/C Ratio(X)	0.07	0.00	0.67	0.21	0.00	0.20	0.38	0.12	0.03	0.06	0.26	0.26
Avail Cap(c_a), veh/h	427	0	336	327	0	321	696	2838	1260	962	1391	1459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	0.0	43.4	39.2	0.0	38.8	2.2	0.0	0.0	2.1	3.5	3.5
Incr Delay (d2), s/veh	0.3	0.0	10.1	1.5	0.0	1.4	0.3	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	7.1	1.9	0.0	1.7	0.7	0.0	0.0	0.2	2.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	0.0	53.4	40.7	0.0	40.2	2.5	0.1	0.0	2.1	4.0	4.0
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		252			132			628			788	
Approach Delay, s/veh		51.7			40.5			1.1			3.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	101.9		31.5	10.5	100.0		31.5				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		* 6				
Max Green Setting (Gmax), s	7.5	72.0		24.0	7.5	72.0		* 26				
Max Q Clear Time (g_c+I1), s	2.7	2.0		17.6	5.9	8.6		7.3				
Green Ext Time (p_c), s	0.0	2.4		0.5	0.1	5.1		0.7				

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

Notes

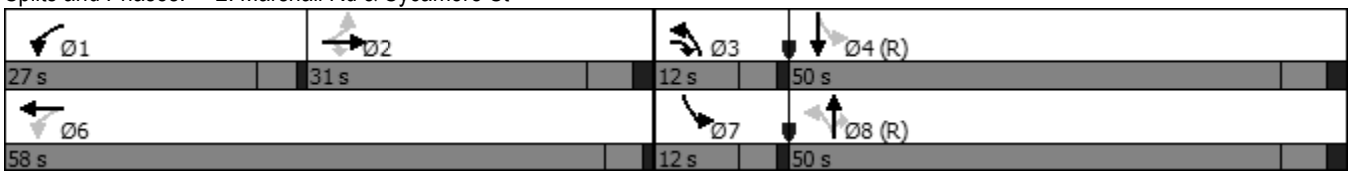
User approved pedestrian interval to be less than phase max green.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	4	20	253	382	35	239	554	255	28	926
Future Volume (vph)	4	20	253	382	35	239	554	255	28	926
Turn Type	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	3	1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	2	2	3	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	9.5	9.5	9.5	11.0	11.0	9.5	11.0
Total Split (s)	31.0	31.0	12.0	27.0	58.0	12.0	50.0	50.0	12.0	50.0
Total Split (%)	25.8%	25.8%	10.0%	22.5%	48.3%	10.0%	41.7%	41.7%	10.0%	41.7%
Yellow Time (s)	4.0	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.5	4.5	4.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		10.4	32.4	34.1	34.1	76.0	68.6	68.6	55.2	47.4
Actuated g/C Ratio		0.09	0.27	0.28	0.28	0.63	0.57	0.57	0.46	0.40
v/c Ratio		0.17	0.56	0.98	0.12	0.60	0.30	0.28	0.07	0.73
Control Delay		49.7	29.2	79.4	18.4	32.2	12.5	0.9	11.0	27.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		49.7	29.2	79.4	18.4	32.2	12.5	0.9	11.0	27.5
LOS		D	C	E	B	C	B	A	B	C
Approach Delay		31.0			71.7		14.2			27.0
Approach LOS		C			E		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Marshall Rd & Sycamore St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	275	415	60	260	602	277	30	1015
v/c Ratio	0.17	0.56	0.98	0.12	0.60	0.30	0.28	0.07	0.73
Control Delay	49.7	29.2	79.4	18.4	32.2	12.5	0.9	11.0	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	29.2	79.4	18.4	32.2	12.5	0.9	11.0	27.5
Queue Length 50th (ft)	20	119	295	21	99	92	0	7	358
Queue Length 95th (ft)	42	201	326	42	m#367	207	m17	m21	458
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	362	487	422	792	435	2022	997	431	1396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.56	0.98	0.08	0.60	0.30	0.28	0.07	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	20	253	382	35	20	239	554	255	28	926	7
Future Volume (veh/h)	4	20	253	382	35	20	239	554	255	28	926	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	22	275	415	38	22	260	602	277	30	1007	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	304	389	580	454	263	312	1517	672	302	1412	11
Arrive On Green	0.18	0.18	0.18	0.19	0.41	0.41	0.06	0.43	0.43	0.05	0.78	0.78
Sat Flow, veh/h	157	1649	1572	1781	1110	642	1781	3554	1574	1781	3613	29
Grp Volume(v), veh/h	26	0	275	415	0	60	260	602	277	30	495	520
Grp Sat Flow(s),veh/h/ln	1807	0	1572	1781	0	1752	1781	1777	1574	1781	1777	1865
Q Serve(g_s), s	0.0	0.0	19.2	22.3	0.0	2.5	7.5	14.0	14.7	1.2	16.5	16.5
Cycle Q Clear(g_c), s	1.4	0.0	19.2	22.3	0.0	2.5	7.5	14.0	14.7	1.2	16.5	16.5
Prop In Lane	0.15		1.00	1.00		0.37	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	367	0	389	580	0	717	312	1517	672	302	694	729
V/C Ratio(X)	0.07	0.00	0.71	0.72	0.00	0.08	0.83	0.40	0.41	0.10	0.71	0.71
Avail Cap(c_a), veh/h	410	0	427	580	0	781	312	1517	672	367	694	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	0.94	0.94	0.94
Uniform Delay (d), s/veh	40.5	0.0	41.3	29.3	0.0	21.7	29.3	23.7	23.9	20.6	9.8	9.8
Incr Delay (d2), s/veh	0.1	0.0	4.8	4.2	0.0	0.0	14.5	0.6	1.5	0.1	5.8	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.8	10.1	0.0	1.1	4.9	5.9	5.7	0.5	4.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	0.0	46.1	33.5	0.0	21.7	43.8	24.3	25.4	20.7	15.6	15.3
LnGrp LOS	D	A	D	C	A	C	D	C	C	C	B	B
Approach Vol, veh/h		301			475			1139			1045	
Approach Delay, s/veh		45.6			32.0			29.0			15.6	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	27.0	28.1	12.0	52.9		55.1	7.7	57.2				
Change Period (Y+Rc), s	4.5	6.0	4.5	6.0		* 6	4.5	6.0				
Max Green Setting (Gmax), s	22.5	25.0	7.5	44.0		* 54	7.5	44.0				
Max Q Clear Time (g_c+I1), s	24.3	21.2	9.5	18.5		4.5	3.2	16.7				
Green Ext Time (p_c), s	0.0	0.4	0.0	7.0		0.3	0.0	5.3				

Intersection Summary			
HCM 6th Ctrl Delay		26.5	
HCM 6th LOS		C	

Notes

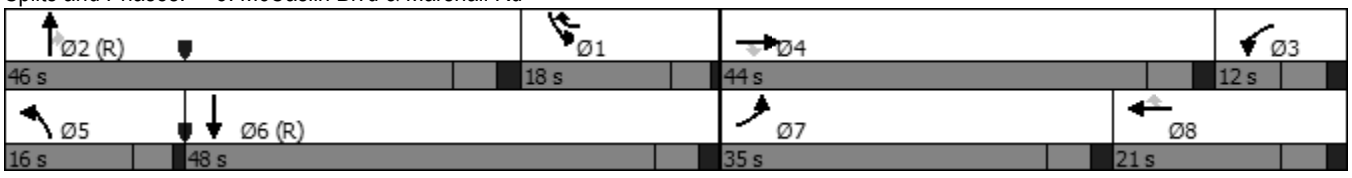
User approved pedestrian interval to be less than phase max green.

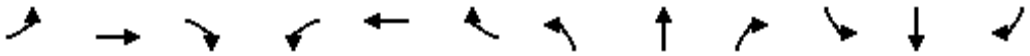
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1018	56	518	104	57	181	229	1377	67	270	1385	749
Future Volume (vph)	1018	56	518	104	57	181	229	1377	67	270	1385	749
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	4.5	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	21.0	21.0	11.0	21.0	9.5	9.5	11.0	11.0	9.5	11.0	
Total Split (s)	35.0	44.0	44.0	12.0	21.0	18.0	16.0	46.0	46.0	18.0	48.0	
Total Split (%)	29.2%	36.7%	36.7%	10.0%	17.5%	15.0%	13.3%	38.3%	38.3%	15.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.5	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	30.0	32.9	32.9	7.9	15.0	26.7	11.3	43.2	43.2	13.5	45.4	120.0
Actuated g/C Ratio	0.25	0.27	0.27	0.07	0.12	0.22	0.09	0.36	0.36	0.11	0.38	1.00
v/c Ratio	0.89	0.12	0.94	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.51
Control Delay	47.7	27.0	38.9	62.8	50.9	10.7	69.8	40.2	0.3	65.2	37.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	27.0	38.9	62.8	50.9	10.7	69.8	40.2	0.3	65.2	37.4	1.2
LOS	D	C	D	E	D	B	E	D	A	E	D	A
Approach Delay		44.1			33.2			42.7			29.2	
Approach LOS		D			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 37.1	Intersection LOS: D
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: McCaslin Blvd & Marshall Rd



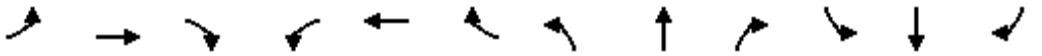


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1107	61	563	113	62	197	249	1497	73	293	1505	814
v/c Ratio	0.89	0.12	0.94	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.51
Control Delay	47.7	27.0	38.9	62.8	50.9	10.7	69.8	40.2	0.3	65.2	37.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	27.0	38.9	62.8	50.9	10.7	69.8	40.2	0.3	65.2	37.4	1.2
Queue Length 50th (ft)	314	35	278	44	44	24	98	399	0	115	391	0
Queue Length 95th (ft)	m#363	m44	m#413	#85	88	58	#155	464	0	#173	455	0
Internal Link Dist (ft)		1089			358			498			562	
Turn Bay Length (ft)	385		265	120		120	180		125	220		200
Base Capacity (vph)	1247	589	658	225	232	445	328	1831	685	386	1924	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.10	0.86	0.50	0.27	0.44	0.76	0.82	0.11	0.76	0.78	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1018	56	518	104	57	181	229	1377	67	270	1385	749
Future Volume (veh/h)	1018	56	518	104	57	181	229	1377	67	270	1385	749
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1107	61	0	113	62	197	249	1497	0	293	1505	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1192	290		716	234	361	305	1702		361	1848	
Arrive On Green	0.24	0.15	0.00	0.21	0.12	0.12	0.09	0.33	0.00	0.10	0.36	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1566	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	1107	61	0	113	62	197	249	1497	0	293	1505	0
Grp Sat Flow(s),veh/h/ln	1674	1870	1585	1728	1870	1566	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	25.9	3.4	0.0	3.2	3.6	5.0	8.5	33.2	0.0	10.0	32.0	0.0
Cycle Q Clear(g_c), s	25.9	3.4	0.0	3.2	3.6	5.0	8.5	33.2	0.0	10.0	32.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1192	290		716	234	361	305	1702		361	1848	
V/C Ratio(X)	0.93	0.21		0.16	0.27	0.55	0.82	0.88		0.81	0.81	
Avail Cap(c_a), veh/h	1214	592		716	234	361	331	1702		389	1848	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.8	44.3	0.0	39.0	47.5	15.7	53.8	37.7	0.0	52.6	34.6	0.0
Incr Delay (d2), s/veh	7.7	0.2	0.0	0.1	0.6	1.7	13.8	6.9	0.0	11.7	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	1.6	0.0	1.4	1.7	2.3	4.3	14.7	0.0	4.9	13.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	44.5	0.0	39.1	48.1	17.4	67.5	44.6	0.0	64.2	38.7	0.0
LnGrp LOS	D	D		D	D	B	E	D		E	D	
Approach Vol, veh/h		1168			372			1746			1798	
Approach Delay, s/veh		52.0			29.1			47.9			42.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	46.0	30.9	24.6	15.1	49.4	34.5	21.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	4.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	13.5	* 40	6.0	38.0	11.5	42.0	29.0	15.0
Max Q Clear Time (g_c+I1), s	12.0	35.2	5.2	5.4	10.5	34.0	27.9	7.0
Green Ext Time (p_c), s	0.2	3.7	0.0	0.3	0.1	5.7	0.6	0.6

Intersection Summary	
HCM 6th Ctrl Delay	45.7
HCM 6th LOS	D

Notes

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

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

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

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	9	32	22	10	0	37	42	27	2	34	39
Future Vol, veh/h	26	9	32	22	10	0	37	42	27	2	34	39
Peak Hour Factor	0.73	0.92	0.73	0.92	0.92	0.92	0.67	0.67	0.92	0.92	0.75	0.75
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	36	10	44	24	11	0	55	63	29	2	45	52
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.9	8.1	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	39%	69%	3%
Vol Thru, %	40%	13%	31%	45%
Vol Right, %	25%	48%	0%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	67	32	75
LT Vol	37	26	22	2
Through Vol	42	9	10	34
RT Vol	27	32	0	39
Lane Flow Rate	147	89	35	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.172	0.106	0.045	0.112
Departure Headway (Hd)	4.21	4.263	4.703	4.063
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	857	843	763	886
Service Time	2.21	2.277	2.719	2.074
HCM Lane V/C Ratio	0.172	0.106	0.046	0.113
HCM Control Delay	8.1	7.8	7.9	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0.1	0.4