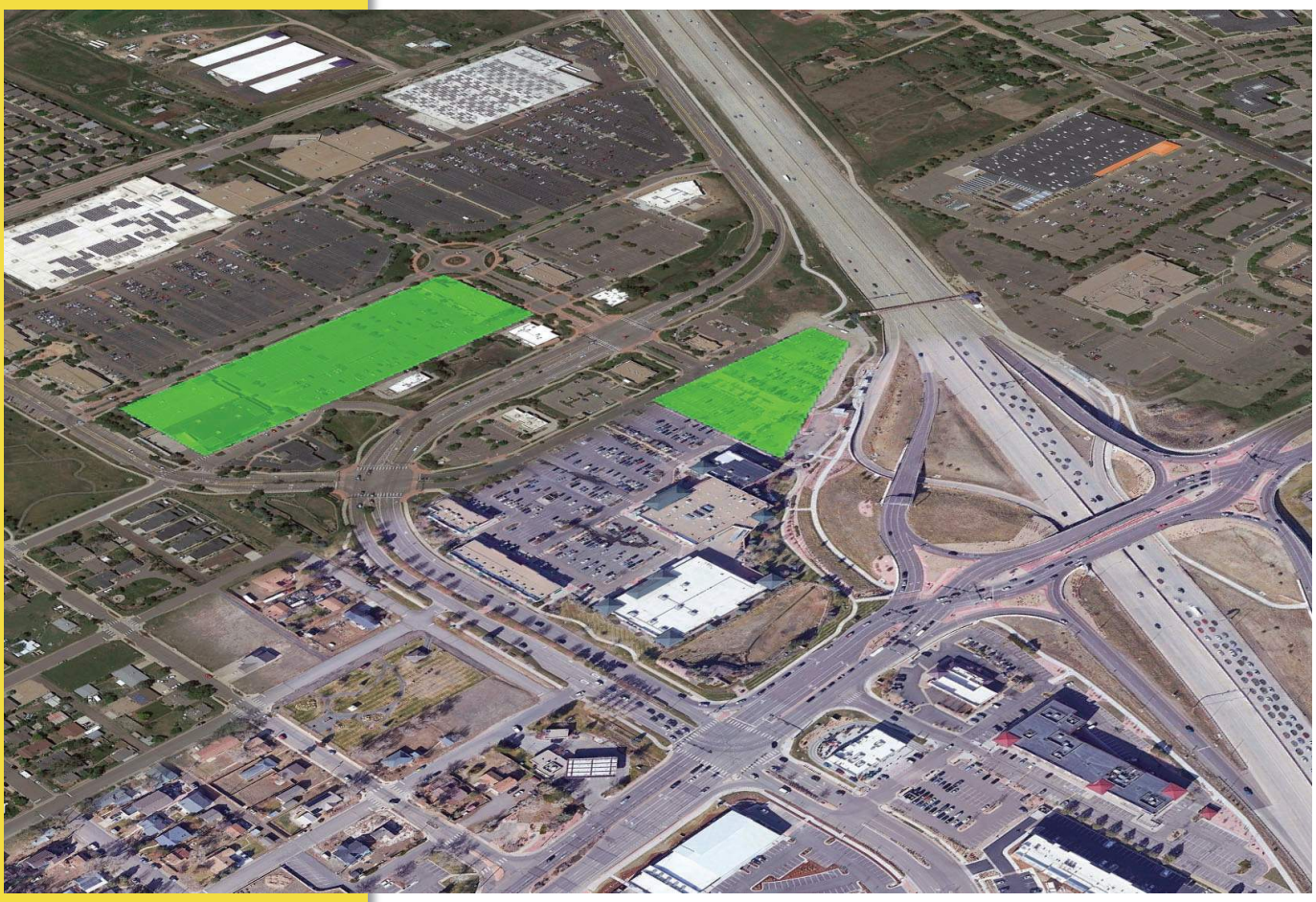
Boulder County Housing Authority and Brixmor TOD Site

Traffic Impact Study

Town of Superior, Colorado



Date: *January 18, 2022 (DRAFT)*

Submitted To:
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FOX TUTTLE

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BCHA AND BRIXMOR 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) and potential Brixmor residential Transit Oriented Development (TOD) projects within the Superior Marketplace located in the Town of Superior. There projects would develop 192 multifamily units and 300-350 multifamily units, respectively.

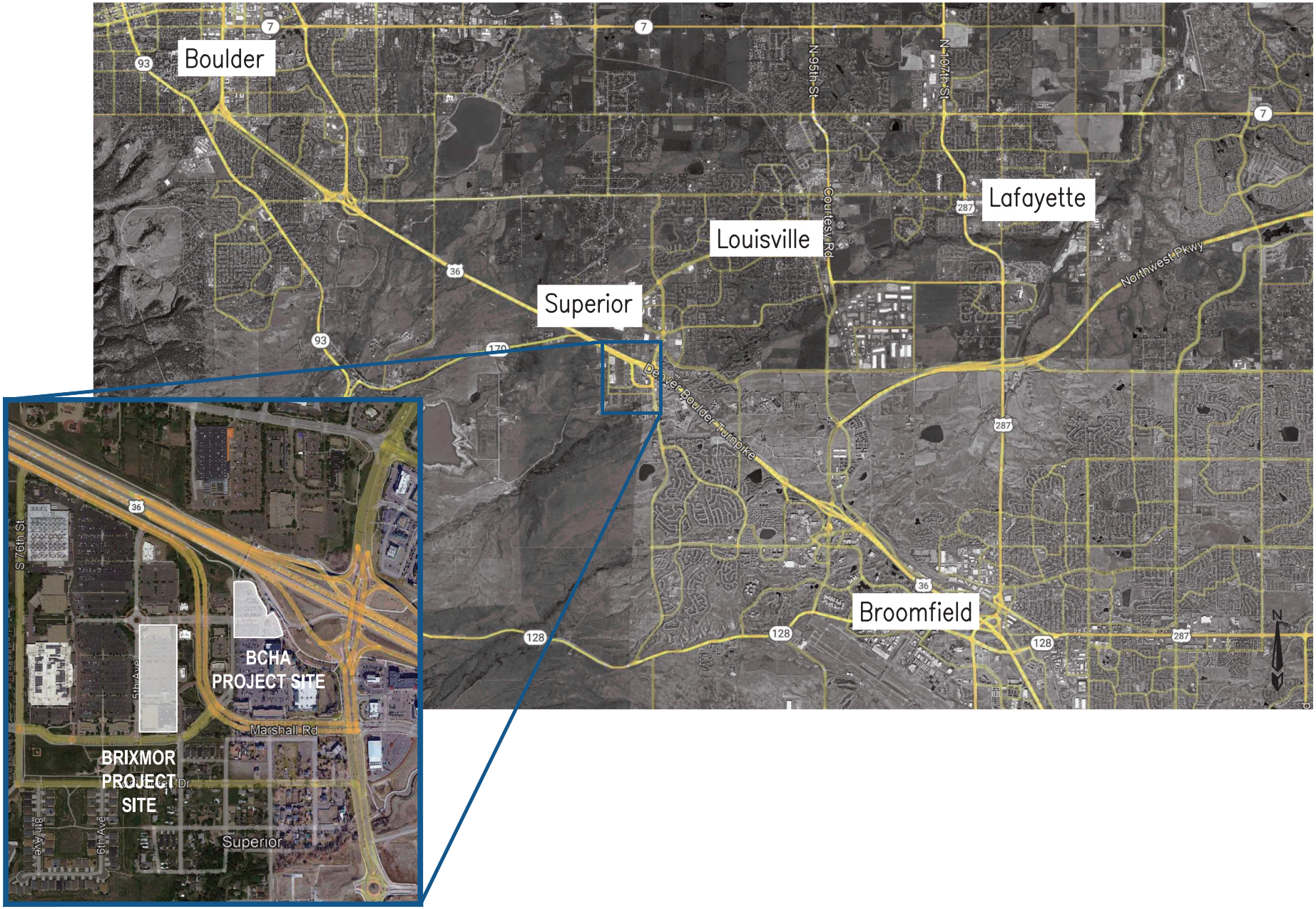
While the potential Brixmor project is not part of BCHA's proposed development, BCHA chose to include this potential future project to provide a wholistic review of future traffic and parking impacts in the Superior Marketplace area.

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 192 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. The potential future Brixmor project plans to redevelop existing parking and commercial space to build 300-350 new multifamily units. The Brixmor site would displace the space where Office Max and PetSmart previously operated. The Brixmor site is bordered by 5th Avenue on the west, Center Drive on the north, Marshall Road on the east, and Sycamore Street on the south. Access to the Brixmor site is proposed via existing retail driveway access from Marshall Road and from Sycamore Street.

A vicinity map is shown on **Figure 1**. Existing adjacent land uses include commercial retail, restaurant, and service uses. The concept site plans are shown on **Figure 2**.



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VICINITY MAP

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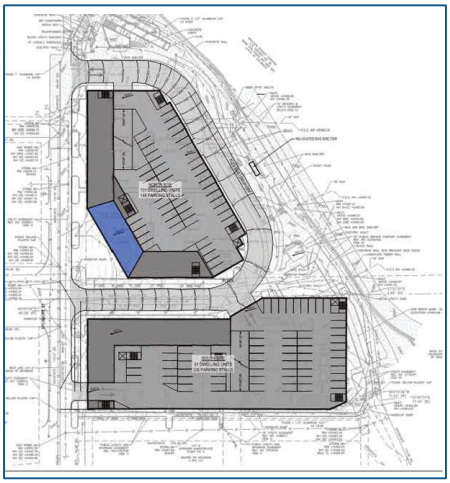

BCHA
PROJECT SITE

BRIXMOR
PROJECT SITE

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SITE AND ACCESS PLAN

FT #	21066	Original Scale	NTS	Date	1/12/2022	Drawn by	AWD	Figure #	2

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 and pre-COVID conditions), McCaslin Blvd. services approximately 24,000 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. 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 east end at the US 36 & McCaslin RTD 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. 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 station to Boulder (to the north) and other US 36 communities (so the south).

Bus routes serves by the US 36 and McCaslin 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.

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.

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

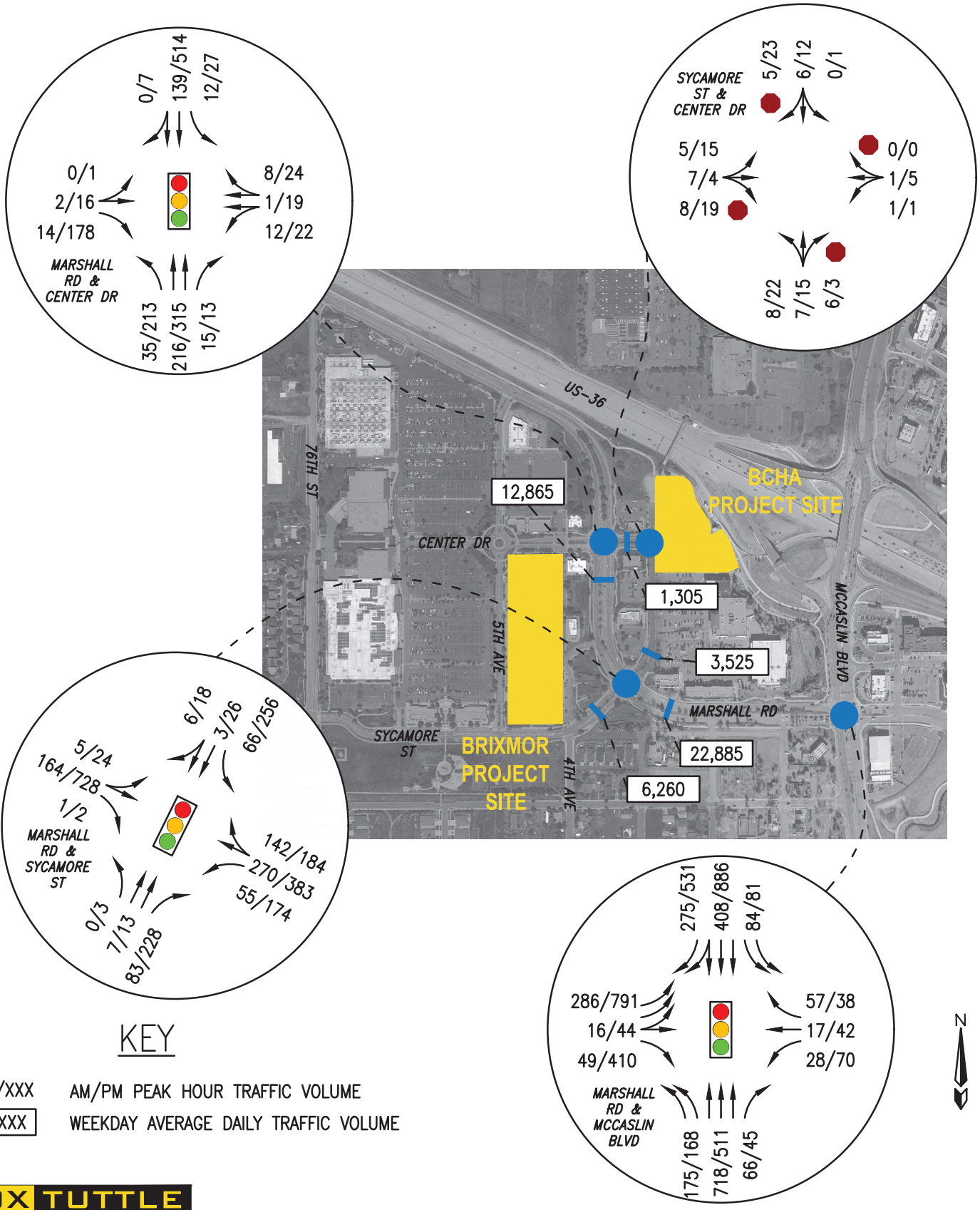
The results of the LOS and queue calculations for the intersections are summarized on **Table 1** and **Table 2**, respectively. The intersection level of service and queue worksheets are attached in the Appendix. The LOS data shows that all study intersections are operating acceptably overall, but with 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 "split" phase operation of the signal phasing implemented to allow the eastbound triple left-turn (with shared through movement) to operate without conflicts with the opposing westbound approach. Mitigation of the split-phasing condition 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 needed 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 are mitigated by a change in signal timing to include a right turn overlap with the northbound left turn movement.



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

FT #	21066	Original Scale	NTS	Date	12/8/21	Drawn by	MAR	Figure #	3

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	41	D	52	D	41	D
Northbound Left	3	A	3	A	3	A	3	A	3	A	3	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**	**18**	**B**	**26**	**C**	**23**	**C**	**27**	**C**	**20**	**B**	**23**	**C**	**24**	**C**	**25**	**C**
Eastbound Left+Through	52	D	44	D	51	D	41	D	45	D	41	D	50	D	40	D	44	D	41	D
Eastbound Right	63	E	>120	F	52	D	46	D	49	D	46	D	51	D	48	D	48	D	46	D
Westbound Left	47	D	35	C	46	D	32	C	39	D	32	C	44	D	31	C	40	D	32	C
Westbound Through+Right	42	D	27	C	41	D	24	C	35	C	24	C	39	D	22	C	33	C	22	C
Northbound Left	5	A	16	B	6	A	23	C	9	A	30	C	7	A	32	C	10	A	36	D
Northbound Through	6	A	17	B	7	A	20	C	10	A	21	C	8	A	24	C	11	B	24	C
Northbound Right	7	A	18	B	7	A	21	C	11	B	22	C	8	A	24	C	11	B	24	C
Southbound Left	7	A	16	B	7	A	18	B	10	B	19	B	8	A	19	B	11	B	20	C
Southbound Through+Right	18	B	17	B	19	B	22	C	23	C	23	C	21	C	12	B	25	C	15	B
3. Marshall Rd at McCaslin Blvd	**31**	**C**	**54**	**D**	**35**	**C**	**61**	**E**	**35**	**D**	**62**	**E**	**34**	**C**	**45**	**D**	**35**	**D**	**45**	**D**
Eastbound Left	56	E	51	D	60	E	51	D	57	E	51	D	56	E	52	D	55	E	52	D
Eastbound Through	56	E	51	D	60	E	51	D	57	E	51	D	46	D	52	D	55	D	45	D
Eastbound Right	51	D	>120	F	46	D	>120	F	42	D	>120	F	50	D	0	A	0	A	0	A
Westbound Left	71	E	69	E	79	E	68	E	77	E	68	E	50	D	34	C	39	D	40	D
Westbound Through	56	E	52	D	51	D	53	D	50	D	53	D	47	D	48	D	47	D	48	D
Westbound Right	53	D	30	C	27	C	31	C	29	C	32	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	67	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	45	D	48	D	49	D	48	D	42	D	61	E	46	D	62	E
Southbound Through	10	B	23	C	15	B	24	C	17	B	24	C	22	C	38	D	24	C	38	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**	**7**	**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	7	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	7	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'	38'	15'	41'	19'	43'
Eastbound Right	100'	0'	62'	0'	65'	0'	65'	0'	65'	0'	66'
Westbound Left+Through	-	16'	14'	17'	37'	18'	38'	36'	56'	38'	57'
Westbound Through+Right	-	16'	14'	17'	37'	18'	38'	36'	56'	38'	57'
Northbound Left	425'	32'	28'	9'	113'	10'	113'	7'	173'	6'	173'
Northbound Through	-	67'	26'	21'	25'	24'	25'	15'	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'	22'
Southbound Through+Right	-	38'	103'	41'	149'	42'	149'	50'	179'	51'	180'
2. Marshall Rd at Sycamore St											
Eastbound Left+Through	-	21'	34'	20'	32'	35'	32'	24'	38'	36'	39'
Eastbound Right	160'	34'	76'	40'	**161'**	53'	**162'**	42'	**183'**	51'	**186'**
Westbound Left	100'	82'	**231'**	82'	**231'**	**114'**	**247'**	**118'**	**269'**	**141'**	**298'**
Westbound Through+Right	-	16'	39'	16'	38'	17'	39'	19'	39'	19'	41'
Northbound Left	400'	19'	146'	39'	217'	52'	289'	27'	237'	40'	327'
Northbound Through	-	48'	170'	97'	205'	97'	204'	79'	198'	88'	205'
Northbound Right	-	2'	70'	35'	83'	37'	86'	0'	15'	0'	16'
Southbound Left	120'	3'	17'	5'	21'	5'	21'	6'	22'	7'	21'
Southbound Through+Right	-	20'	311'	29'	381'	29'	383'	47'	456'	53'	458'
3. Marshall Rd at McCaslin Blvd											
Eastbound Left	385'	138'	336'	148'	**394'**	187'	**400'**	155'	351'	192'	352'
Eastbound Through	-	161'	416'	178'	479'	214'	480'	42'	46'	40'	45'
Eastbound Right	265'	1'	131'	0'	185'	0'	189'	12'	**449'**	12'	**430'**
Westbound Left	120'	54'	108'	63'	116'	62'	116'	38'	85'	38'	85'
Westbound Through	-	36'	72'	40'	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'	125'	114'	125'	116'	139'	152'	142'	152'
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'	129'	293'	124'	293'	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'	3'	8'
Westbound Left+Through+Right	-	0'	0'	0'	0'	3'	3'	3'	3'	3'	3'
Northbound Left+Through+Right	-	0'	5'	3'	5'	5'	8'	3'	10'	5'	13'
Southbound Left+Through+Right	-	3'	5'	3'	5'	3'	5'	3'	8'	3'	8'

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.

The 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 rates, 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 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.

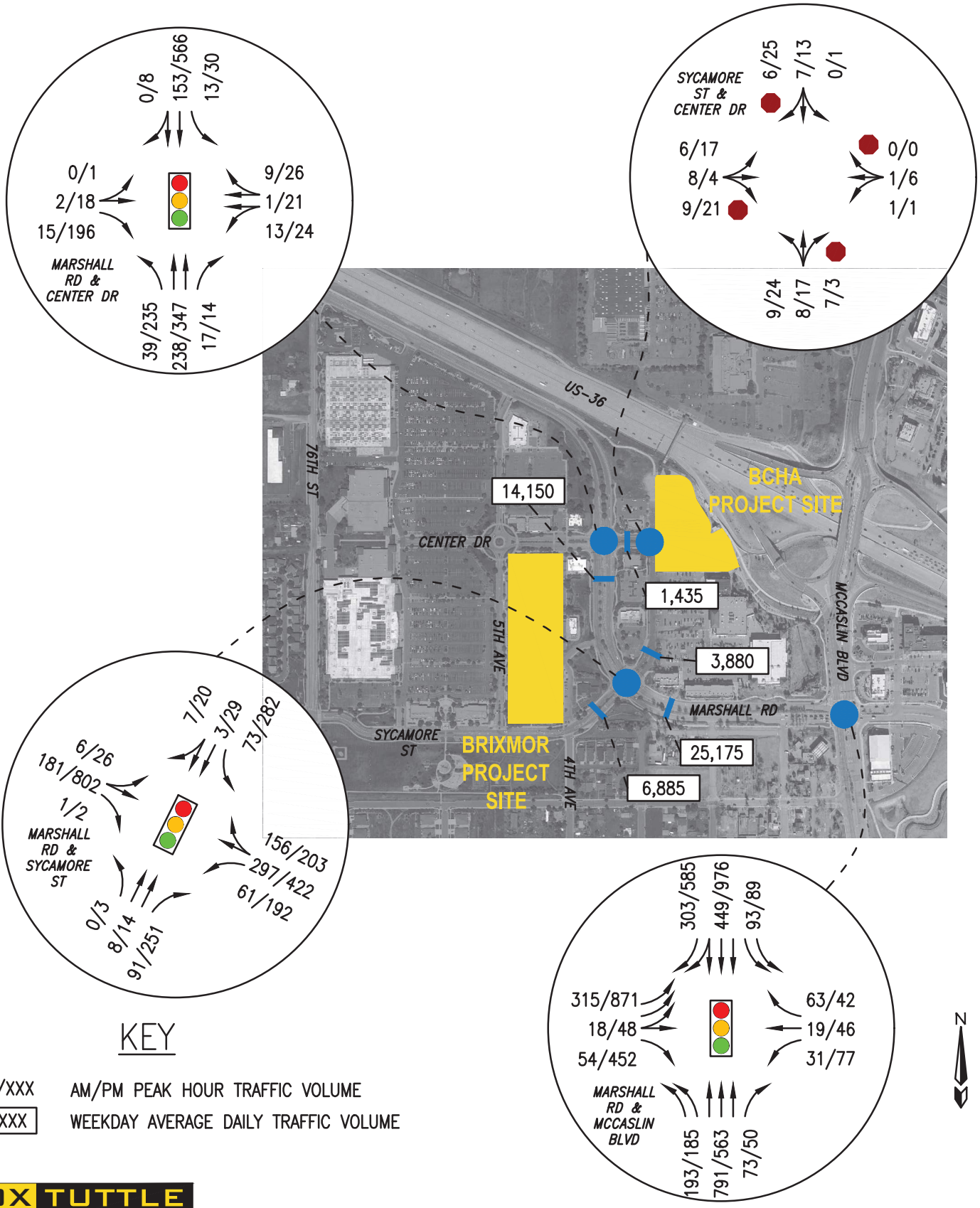
- The intersection is anticipated to operate at LOS E in the PM peak hour, and with the same approaches and movements operating at LOS E as noted for the existing conditions in Section 3.4.
- As noted in Section 3.4, the poor operation of this intersection is primarily due to the "split" phase operation of the signal phasing implemented to allow the eastbound triple left turn (with shared through movement) to operate without conflicts with the opposing westbound approach. Mitigation of the split-phasing condition 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.

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 are mitigated by a change in signal timing to include a right turn overlap with the northbound left turn movement.

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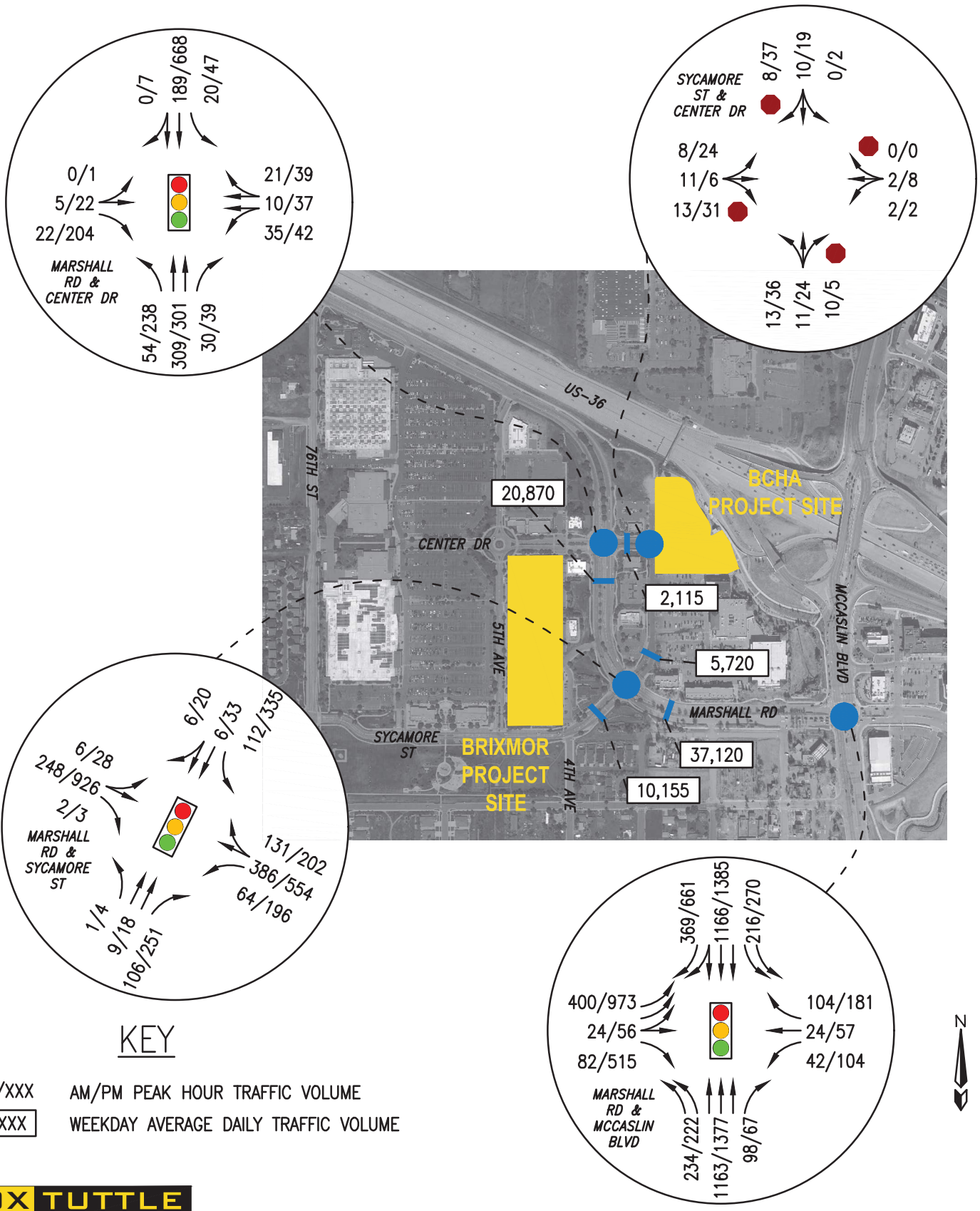
BOULDER COUNTY HOUSING AUTHORITY TOD SITE TRAFFIC IMPACT STUDY - SUPERIOR, CO

YEAR 2025 BACKGROUND TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	1/12/2022	Drawn by	AWD	Figure #	4



KEY

XXX/XXX — AM/PM PEAK HOUR TRAFFIC VOLUME

XX,XXX — WEEKDAY AVERAGE DAILY TRAFFIC VOLUME

FOX TUTTLE TRANSPORTATION GROUP

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

YEAR 2041 BACKGROUND TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	1/12/2022	Drawn by	AWD	Figure #	5

5.0 PROPOSED DEVELOPMENT TRAFFIC

5.1 Trip Generation

The BCHA site proposes to develop two five-story buildings on the site, each with partial below grade parking. The north building is proposed to include 101 dwelling units with the south building including 91 dwelling units (192 units total). The development will also include approximately 3,300 square feet of amenity/commercial space. This commercial space is anticipated to service residents and potentially transit customers using the RTD station, but not as a unique destination that would generate separate automobile trips.

The Brixmor residential site proposes to develop approximately 300-350 market-rate multifamily dwelling units, to displace the existing Office Max and PetSmart stores. The project proposes structured parking.

In order to estimate the anticipated volume of trips generated by the development of these sites, two separate resources were used dependent upon the type of housing. For the Brixmor site with market-rate multifamily units, trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual[3] were utilized. However, the BCHA site proposes affordable housing units, which have been shown to generate less automobile trips than typical residential sites. For the BCHA site, 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.

Both Transit Oriented Development (TOD) sites 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 trip generation estimates to account for transit, biking a walking trips. A 30% non-auto use reduction was applied for the BCHA site and a 10% reduction for the Brixmor site for transit and multimodal trip usage (given varying proximity to the RTD station for these projects), although it is expected that these reductions may be greater. A 10% internal capture percentage was also assumed for non-auto biking and walking trips to surrounding mixed-use as well as short-distance automobile trips within the Superior Marketplace that would not impact external roadways.

[3] Trip Generation 10th Edition, Institute of Transportation Engineers, 2016.

The resulting existing trip estimates for each parcel are summarized on **Table 2** on the following page. As shown, the two developments are anticipated to generate the following automobile trips at buildout and full occupancy:

- BCHA: 494 daily trips, 60 AM peak hour trips, 41 PM peak hour trips
- Brixmor: 1,911 daily trips, 113 AM peak hour trips, 145 PM peak hour trips

Although the Brixmor site proposes to displace two commercial buildings that had generated traffic that the existing roadway and intersection network was built to support, reductions of these commercial trips were applied to the new residential trip totals. Thus, the Brixmor site trips can be considered conservatively low as the background volumes still include some volume of trips associated with those commercial uses.

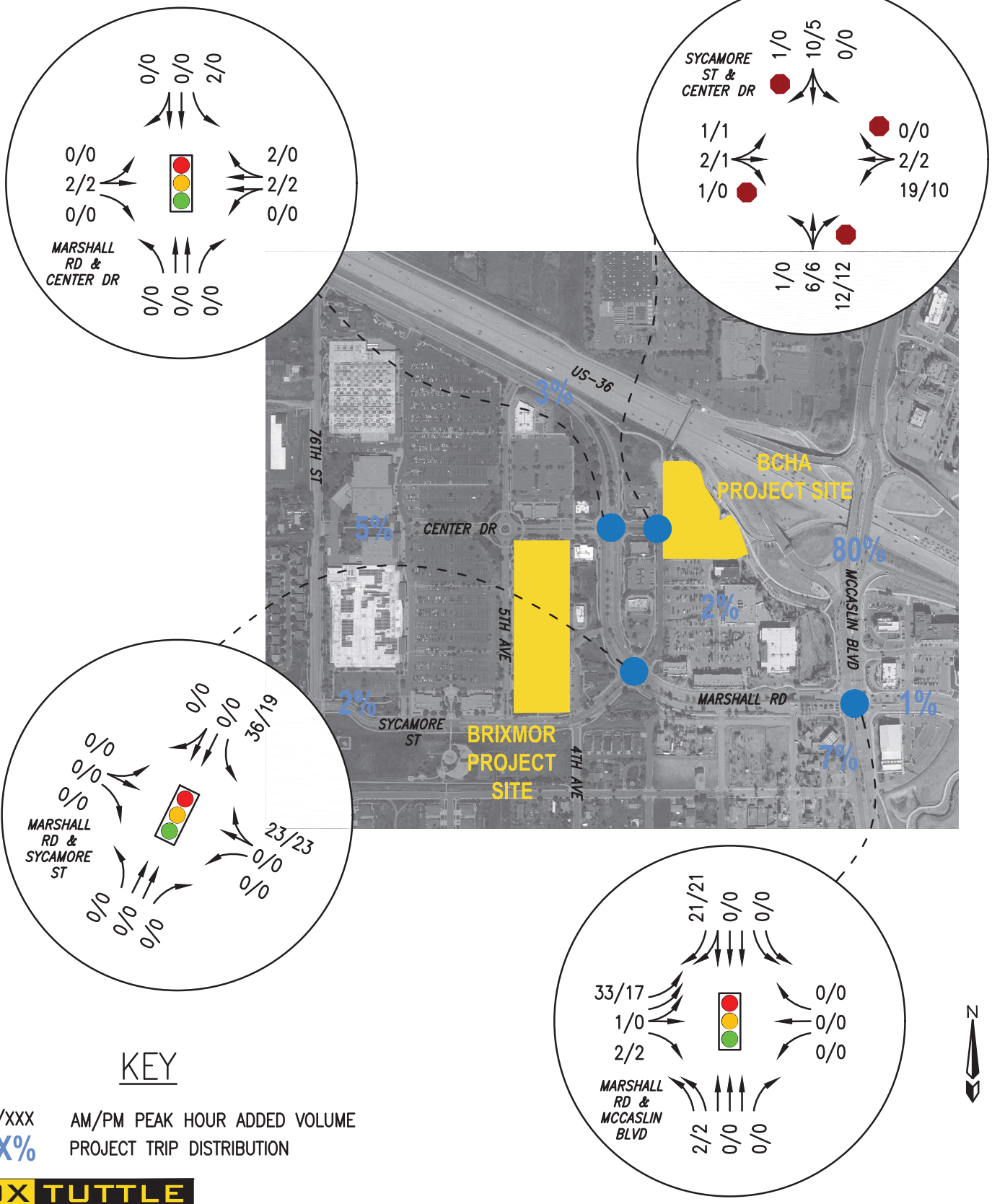
5.2 Trip Distribution and Assignment

The estimated project build-out 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 (ie: 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 for the BCHA site on **Figure 6** and for the Brixmor site on **Figure 7**.

Table 3 - Trip Generation Summary

	Land Use	Size	Unit	Non-Auto Factor [1]	Internal Capture Adjust [2]	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	192	DU	0.70	0.90	4.08	494	0.50	60	24	36	0.34	41	23	18
	BHCA Site - Total New Trips:						*494*		*60*	*24*	*36*		*41*	*23*	*18*
Brixmor Site															
2	ITE 210 - Multi-Family Housing (Low-Rise)	350	DU	0.90	0.90	6.74	1911	0.40	113	27	86	0.51	145	91	54
	Brixmor Site - Total New Trips:						*1,911*		*113*	*27*	*86*		*145*	*91*	*54*



KEY

XXX/XXX AM/PM PEAK HOUR ADDED VOLUME

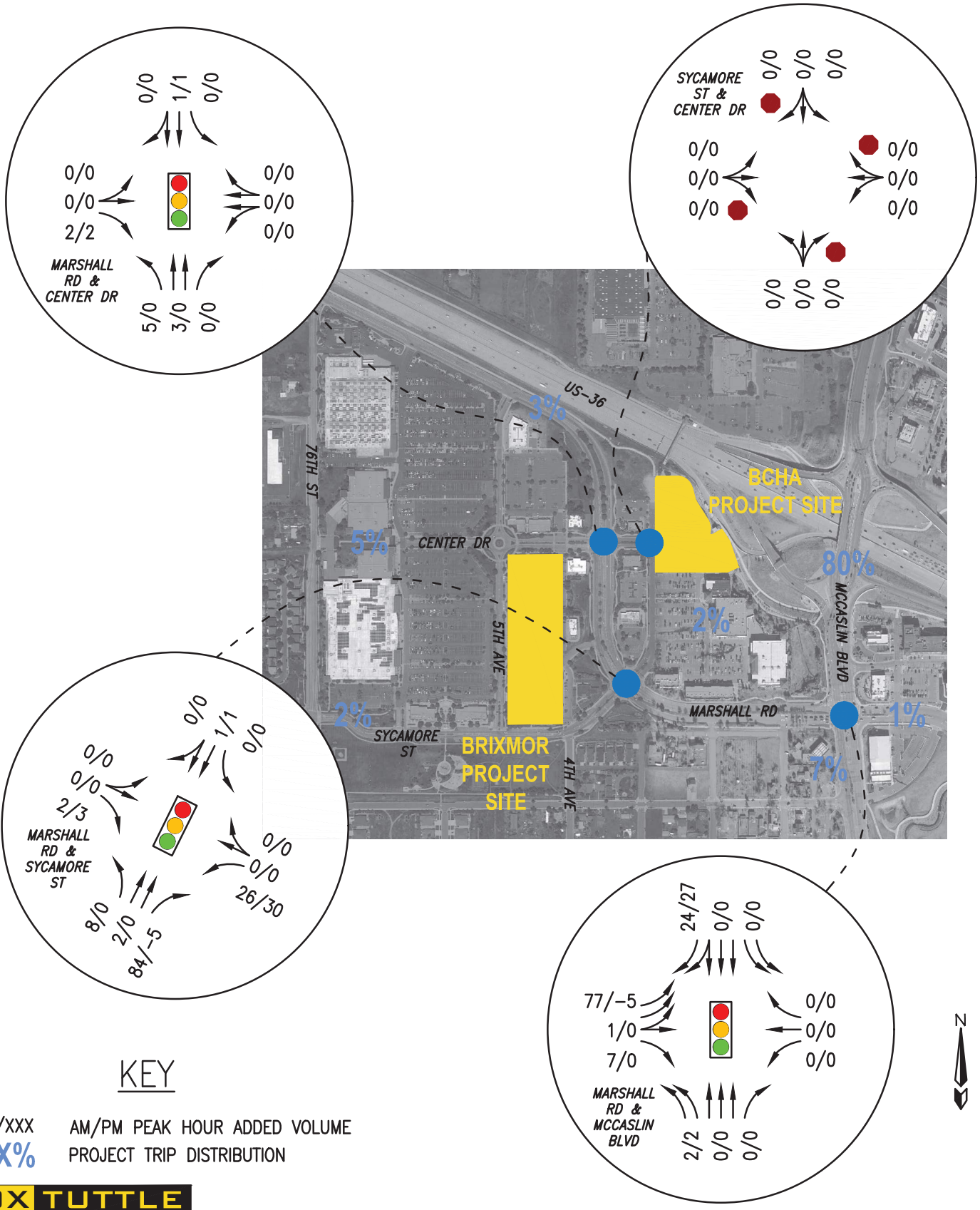
XX% PROJECT TRIP DISTRIBUTION

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	1/12/2022	Drawn by	AWD	Figure #	6



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

BRIXMOR SITE-GENERATED TRAFFIC VOLUMES

FT #	21066	Original Scale	NTS	Date	12/8/21	Drawn by	MAR	Figure #	7

6.0 FUTURE TRAFFIC CONDITIONS WITH PROJECT

This analysis has been conducted in order to determine impacts associated with full development and occupancy of both the BCHA affordable housing and Brixmor multifamily residential projects in the short-term (build-out) and long-term scenarios.

6.1 Intersection Capacity Analysis for Short-Term + Project Scenario

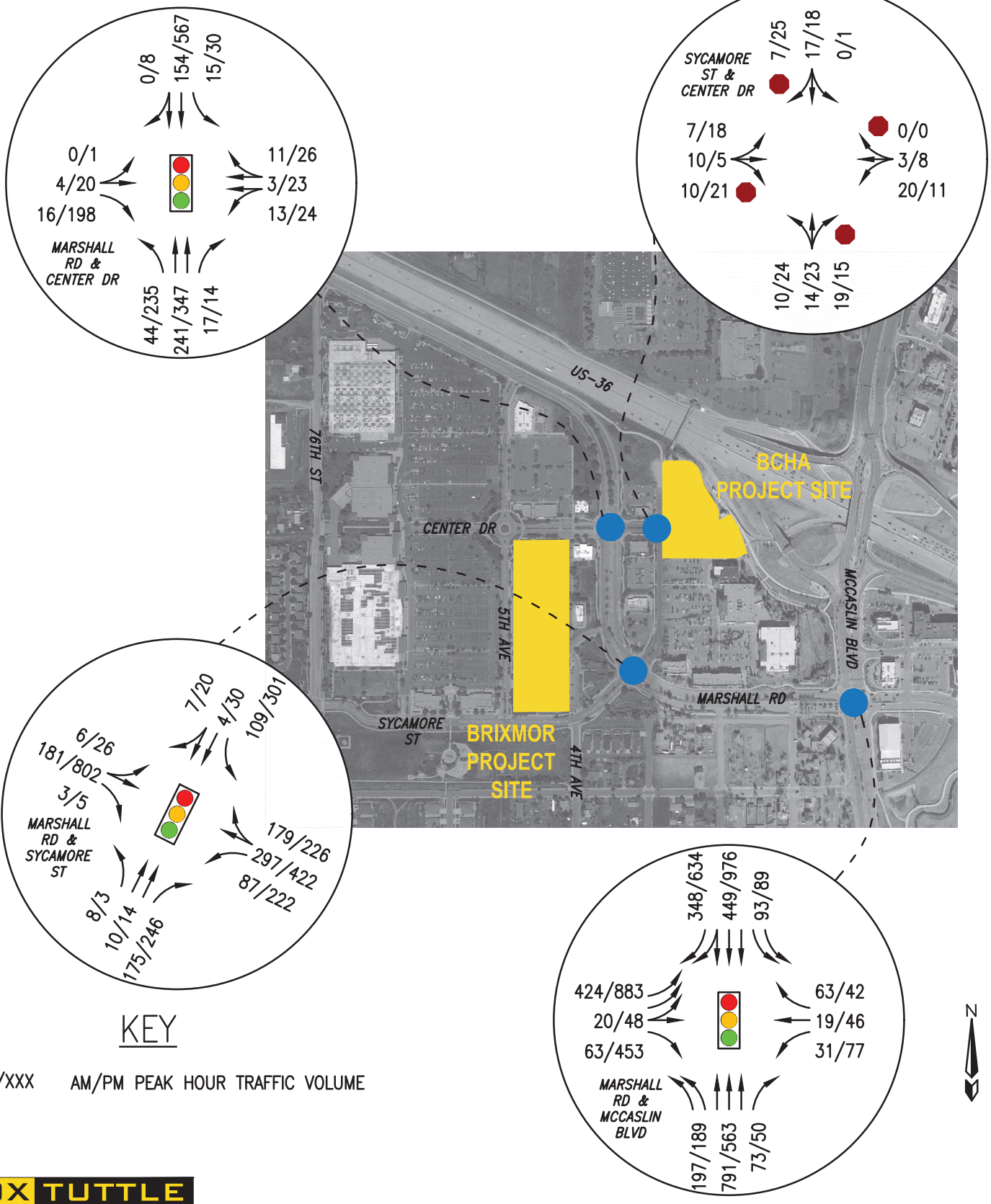
The site-generated traffic volumes were added to the Year 2025 background traffic volumes to analyze potential site impacts in the short-term, build-out scenario. The Year 2025 total traffic volumes are illustrated on **Figure 8**. The level of service criteria discussed in prior sections was applied to the study area intersections to determine impacts with the addition of project build-out traffic volumes in the 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 9**. 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

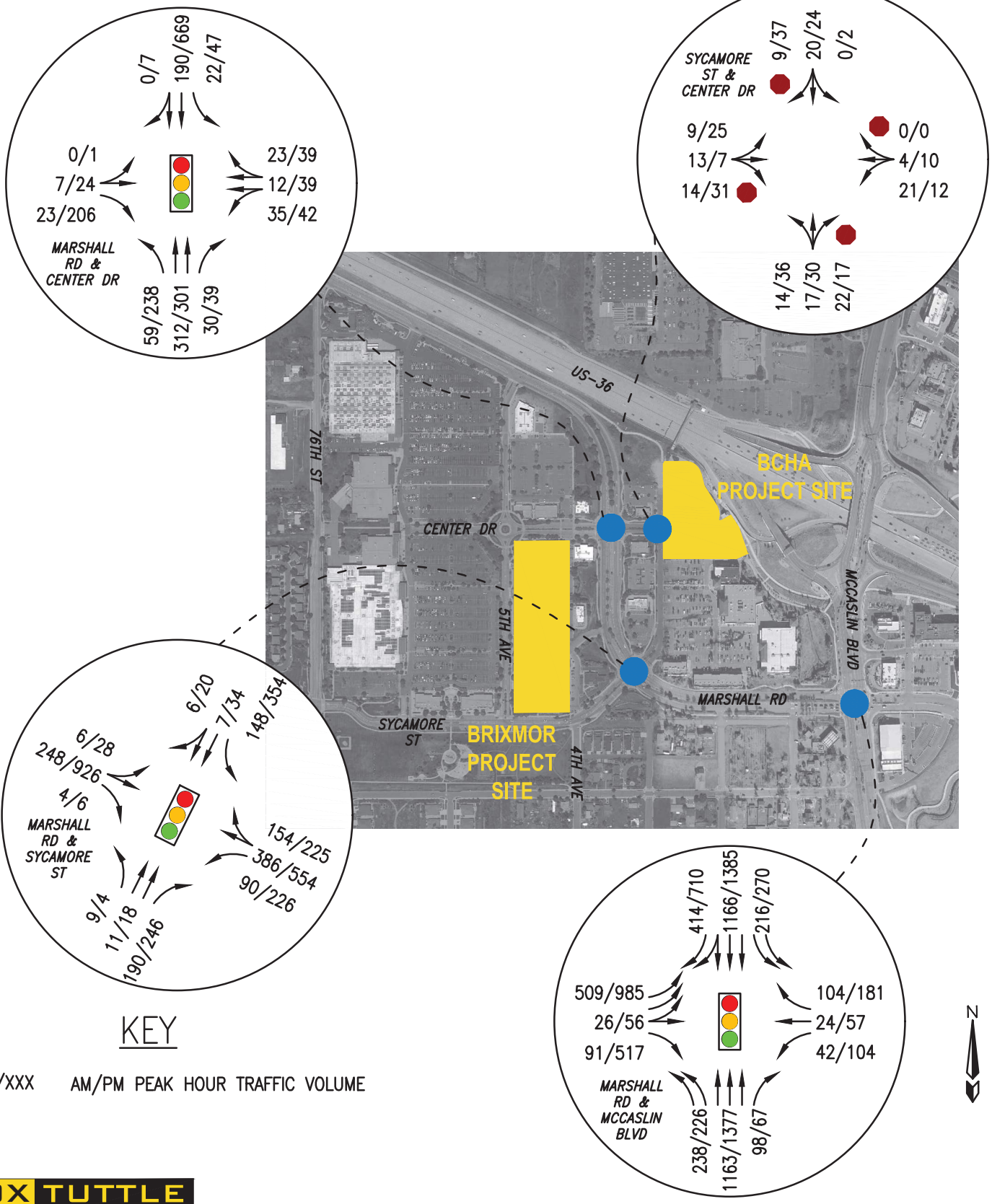
XXX/XXX AM/PM PEAK HOUR TRAFFIC VOLUME

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	1/12/2022	Drawn by	AWD	Figure #	8



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	1/12/2022	Drawn by	AWD	Figure #	9

6.3 Site Access and Circulation

The project proposes the following access points:

- BCHA Site: Access to under-structure parking for the north building along the north side of the RTD station loop driveway and to the south building under-structure parking along both the RTD station loop driveway and along Sycamore Street just south of Center Street
- Brixmor Site: Separate access to surface parking and parking structures for both the north and south buildings via the north-south commercial driveway connecting from Sycamore Street to Center Drive along the east side of the buildings

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 BCHA Site Parking

The BCHA site proposes 359 parking spaces to include 294 RTD parking spaces (matching existing) and 65 residential spaces. 226 spaces are proposed in the south building and 133 in the north building. The residential parking provision of 65 spaces for 192 units equates to a approximately 0.34 spaces per unit. A separate parking analysis, independent of this traffic impact study, will provide analysis of the proposed parking, variance from Town standards (within the context of industry research for estimating affordable housing parking demand) and recommendations for potential parking strategies such as mixed-use shared parking agreements with adjacent commercial use.

7.0 CONCLUSIONS

The Boulder County Housing Authority (BCHA) proposes to develop 192 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. The potential future Brixmor project plans to redevelop existing parking and commercial space to build 300-350 new multifamily units. The Brixmor site will displace the space where Office Max and PetSmart previously operated. 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.

While the potential Brixmor project is not part of BCHA's proposed development, BCHA chose to include this potential future project to provide a wholistic review of future traffic and parking impacts in the Superior Marketplace area."

The combined residential projects are anticipated to generate a total of approximately 2,405 daily, 173 AM peak hour and 186 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 uses 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

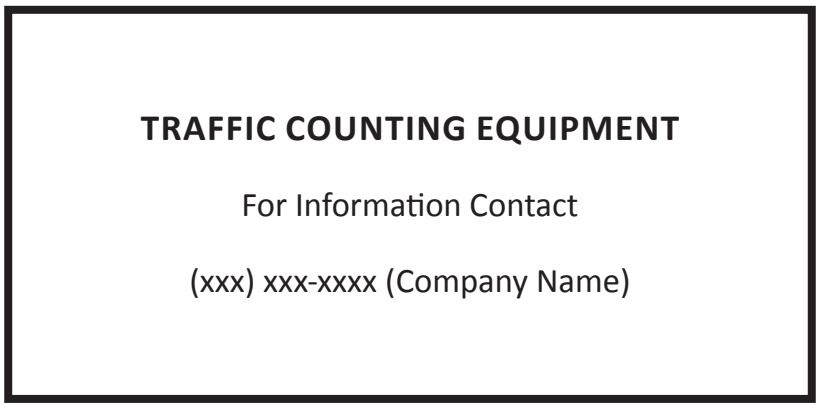
The LADOT traffic count database should be searched for any recent traffic counts at the Study intersections. The TIS should not use any traffic counts that are more than two years old. If recent LADOT traffic counts are not available, then new traffic counts shall be collected by a qualified data collection 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

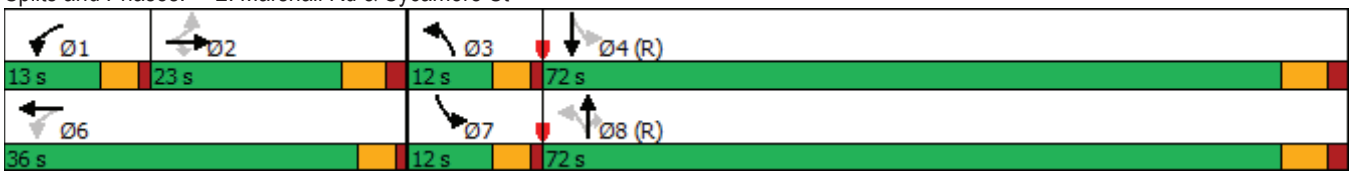
User approved pedestrian interval to be less than phase max green.

* 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

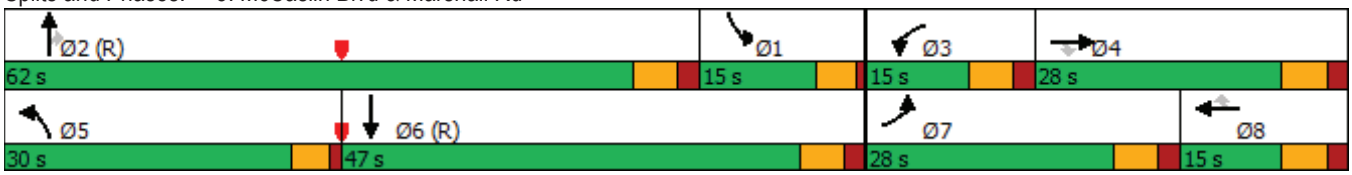
User approved pedestrian interval to be less than phase max green.

* 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	Max	Max	Max	Max	Max	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		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	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	38	388	336	223	187	249	743	2752	1222	872	2690	38
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.10	1.00	1.00	0.03	0.75	0.75
Sat Flow, veh/h	32	1827	1581	817	878	1173	1781	3554	1578	1781	3586	51
Grp Volume(v), veh/h	18	0	193	38	0	33	232	342	14	29	277	290
Grp Sat Flow(s),veh/h/ln	1858	0	1581	1381	0	1487	1781	1777	1578	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	13.1	1.1	0.0	2.1	3.9	0.0	0.0	0.4	5.5	5.5
Cycle Q Clear(g_c), s	0.9	0.0	13.1	2.3	0.0	2.1	3.9	0.0	0.0	0.4	5.5	5.5
Prop In Lane	0.06		1.00	0.63		0.79	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	427	0	336	342	0	316	743	2752	1222	872	1333	1396
V/C Ratio(X)	0.04	0.00	0.57	0.11	0.00	0.10	0.31	0.12	0.01	0.03	0.21	0.21
Avail Cap(c_a), veh/h	427	0	336	342	0	316	764	2752	1222	938	1333	1396
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	37.6	0.0	42.4	38.0	0.0	38.1	2.7	0.0	0.0	3.1	4.4	4.4
Incr Delay (d2), s/veh	0.2	0.0	7.0	0.7	0.0	0.7	0.2	0.1	0.0	0.0	0.4	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	0.5	0.0	5.8	1.0	0.0	0.9	0.9	0.0	0.0	0.1	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	49.4	38.7	0.0	38.7	3.0	0.1	0.0	3.1	4.8	4.8
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		211			71			588			596	
Approach Delay, s/veh		48.4			38.7			1.2			4.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	99.0		31.5	10.5	96.0		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	2.4	2.0		15.1	5.9	7.5		4.3				
Green Ext Time (p_c), s	0.0	2.4		0.5	0.1	3.7		0.3				

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

Notes

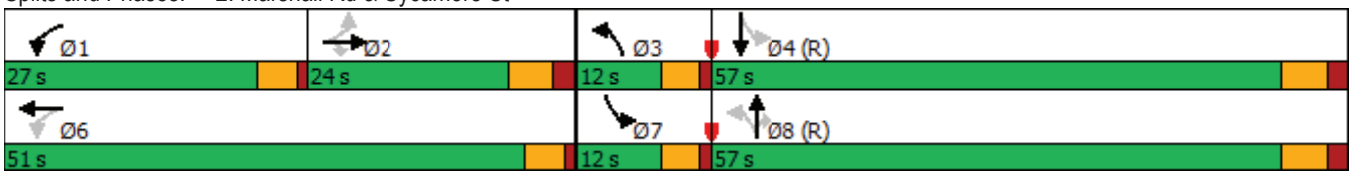
User approved pedestrian interval to be less than phase max green.

* 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	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

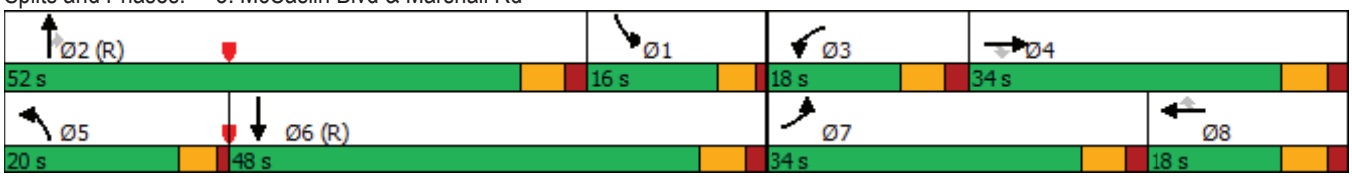
User approved pedestrian interval to be less than phase max green.

* 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	15	13	1	39	238	17	13	153
Future Volume (vph)	2	15	13	1	39	238	17	13	153
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	81.3	75.2
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	0.04		0.04	0.05	0.11	0.02	0.02	0.07
Control Delay	38.5	0.2		26.7	3.4	5.1	0.1	5.2	9.5
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	3.4	5.1	0.1	5.2	9.5
LOS	D	A		C	A	A	A	A	A
Approach Delay	4.5			26.7		4.6			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: 7.1	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	16	25	42	259	18	14	166
v/c Ratio	0.01	0.04	0.04	0.05	0.11	0.02	0.02	0.07
Control Delay	38.5	0.2	26.7	3.4	5.1	0.1	5.2	9.5
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	3.4	5.1	0.1	5.2	9.5
Queue Length 50th (ft)	1	0	4	4	14	0	3	25
Queue Length 95th (ft)	9	0	17	9	21	0	9	41
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	622	851	2352	1045	797	2216
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	0.05	0.11	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	15	13	1	9	39	238	17	13	153	0
Future Volume (veh/h)	0	2	15	13	1	9	39	238	17	13	153	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	16	14	1	10	42	259	18	14	166	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	128	108	147	9	98	1031	2767	1231	927	2710	0
Arrive On Green	0.00	0.07	0.07	0.07	0.07	0.07	0.06	1.00	1.00	0.02	0.76	0.00
Sat Flow, veh/h	0	1870	1579	1296	125	1437	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	2	16	15	0	10	42	259	18	14	166	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1421	0	1437	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.1	1.1	1.0	0.0	0.8	0.6	0.0	0.0	0.2	1.4	0.0
Cycle Q Clear(g_c), s	0.0	0.1	1.1	1.2	0.0	0.8	0.6	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	128	108	155	0	98	1031	2767	1231	927	2710	0
V/C Ratio(X)	0.00	0.02	0.15	0.10	0.00	0.10	0.04	0.09	0.01	0.02	0.06	0.00
Avail Cap(c_a), veh/h	0	374	316	359	0	305	1086	2767	1231	1010	2710	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	52.6	0.0	52.4	2.5	0.0	0.0	3.0	3.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	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	0.5	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	52.2	53.2	52.9	0.0	52.9	2.5	0.1	0.0	3.0	3.6	0.0
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		18			25			319			180	
Approach Delay, s/veh		53.1			52.9			0.4			3.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	99.4		14.2	8.3	97.5		14.2				
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	2.2	2.0		3.1	2.6	3.4		3.2				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

Notes

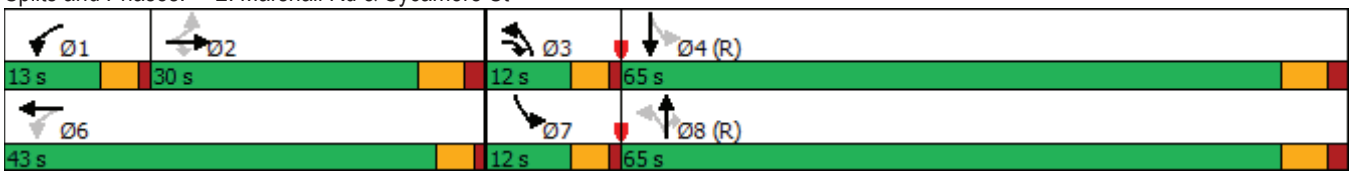
User approved pedestrian interval to be less than phase max green.

* 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)	8	91	73	3	61	297	156	6	181
Future Volume (vph)	8	91	73	3	61	297	156	6	181
Turn Type	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	6		8		8	4	
Detector Phase	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
Minimum Split (s)	24.0	9.5	9.5	22.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	30.0	12.0	13.0	43.0	12.0	65.0	65.0	12.0	65.0
Total Split (%)	25.0%	10.0%	10.8%	35.8%	10.0%	54.2%	54.2%	10.0%	54.2%
Yellow Time (s)	4.0	3.5	3.5	3.5	3.5	4.0	4.0	3.5	4.0
All-Red Time (s)	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	Lead	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)	9.5	13.1	16.6	16.4	95.9	94.1	94.1	91.4	84.2
Actuated g/C Ratio	0.08	0.11	0.14	0.14	0.80	0.78	0.78	0.76	0.70
v/c Ratio	0.06	0.38	0.43	0.05	0.07	0.12	0.14	0.01	0.08
Control Delay	47.0	10.9	50.0	21.6	5.4	6.5	2.1	4.8	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	10.9	50.0	21.6	5.4	6.5	2.1	4.8	5.8
LOS	D	B	D	C	A	A	A	A	A
Approach Delay	13.9			46.5		5.0			5.7
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: 0.43	
Intersection Signal Delay: 10.1	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)	9	99	79	11	66	323	170	7	198
v/c Ratio	0.06	0.38	0.43	0.05	0.07	0.12	0.14	0.01	0.08
Control Delay	47.0	10.9	50.0	21.6	5.4	6.5	2.1	4.8	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	10.9	50.0	21.6	5.4	6.5	2.1	4.8	5.8
Queue Length 50th (ft)	7	0	61	2	6	16	0	1	14
Queue Length 95th (ft)	20	40	82	16	39	97	35	5	29
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	372	273	187	538	925	2776	1248	848	2480
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	0.02	0.36	0.42	0.02	0.07	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)	0	8	91	73	3	7	61	297	156	6	181	1
Future Volume (veh/h)	0	8	91	73	3	7	61	297	156	6	181	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	9	99	79	3	8	66	323	170	7	197	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	158	192	255	78	209	846	2416	1076	661	2362	12
Arrive On Green	0.00	0.08	0.08	0.05	0.17	0.17	0.04	0.68	0.68	0.00	0.21	0.21
Sat Flow, veh/h	0	1870	1574	1781	450	1200	1781	3554	1583	1781	3625	18
Grp Volume(v), veh/h	0	9	99	79	0	11	66	323	170	7	96	102
Grp Sat Flow(s),veh/h/ln	0	1870	1574	1781	0	1650	1781	1777	1583	1781	1777	1867
Q Serve(g_s), s	0.0	0.5	7.1	4.7	0.0	0.7	1.4	3.8	4.6	0.2	5.2	5.2
Cycle Q Clear(g_c), s	0.0	0.5	7.1	4.7	0.0	0.7	1.4	3.8	4.6	0.2	5.2	5.2
Prop In Lane	0.00		1.00	1.00		0.73	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	158	192	255	0	287	846	2416	1076	661	1158	1216
V/C Ratio(X)	0.00	0.06	0.52	0.31	0.00	0.04	0.08	0.13	0.16	0.01	0.08	0.08
Avail Cap(c_a), veh/h	0	374	373	289	0	529	891	2416	1076	756	1158	1216
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	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	50.5	49.4	45.1	0.0	41.2	5.9	6.8	6.9	7.0	18.5	18.5
Incr Delay (d2), s/veh	0.0	0.1	2.2	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	0.3	2.9	2.1	0.0	0.3	0.5	1.4	1.5	0.1	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	50.7	51.6	45.7	0.0	41.3	6.0	6.9	7.2	7.0	18.6	18.6
LnGrp LOS	A	D	D	D	A	D	A	A	A	A	B	B
Approach Vol, veh/h		108			90			559			205	
Approach Delay, s/veh		51.5			45.2			6.9			18.2	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	10.8	16.1	8.9	84.2		26.9	5.5	87.6				
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	6.7	9.1	3.4	7.2		2.7	2.2	6.6				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.1		0.0	0.0	2.8				

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

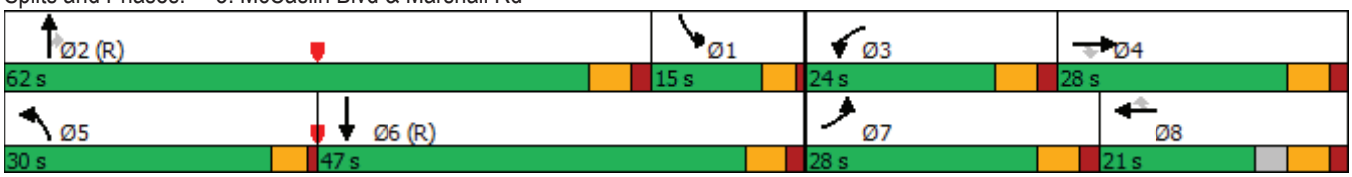
User approved pedestrian interval to be less than phase max green.

* 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)	315	18	54	31	19	63	193	791	73	93	449	303
Future Volume (vph)	315	18	54	31	19	63	193	791	73	93	449	303
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)	14.9	14.9	36.9	8.0	25.1	25.1	13.2	56.0	56.0	10.5	53.3	129.0
Actuated g/C Ratio	0.12	0.12	0.29	0.06	0.19	0.19	0.10	0.43	0.43	0.08	0.41	1.00
v/c Ratio	0.64	0.66	0.10	0.31	0.06	0.16	0.60	0.39	0.11	0.36	0.23	0.21
Control Delay	62.5	71.0	0.4	64.6	44.8	0.8	62.3	25.5	0.9	60.0	25.3	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	62.5	71.0	0.4	64.6	44.8	0.8	62.3	25.5	0.9	60.0	25.3	0.3
LOS	E	E	A	E	D	A	E	C	A	E	C	A
Approach Delay		56.3			25.9			30.6			20.2	
Approach LOS		E			C			C			C	

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: 0.66	
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)	239	123	59	34	21	68	210	860	79	101	488	329
v/c Ratio	0.64	0.66	0.10	0.31	0.06	0.16	0.60	0.39	0.11	0.36	0.23	0.21
Control Delay	62.5	71.0	0.4	64.6	44.8	0.8	62.3	25.5	0.9	60.0	25.3	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	62.5	71.0	0.4	64.6	44.8	0.8	62.3	25.5	0.9	60.0	25.3	0.3
Queue Length 50th (ft)	106	109	0	28	14	0	88	176	0	41	95	0
Queue Length 95th (ft)	148	178	0	63	40	0	125	213	6	71	129	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	187	564	246	363	436	678	2207	750	279	2101	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	0.44	0.66	0.10	0.14	0.06	0.16	0.31	0.39	0.11	0.36	0.23	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	18	54	31	19	63	193	791	73	93	449	303
Future Volume (veh/h)	315	18	54	31	19	63	193	791	73	93	449	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	356	0	59	34	21	68	210	860	0	101	488	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	473	0	280	49	217	183	275	2217		606	2764	
Arrive On Green	0.09	0.00	0.18	0.03	0.12	0.12	0.08	0.43	0.00	0.18	0.54	0.00
Sat Flow, veh/h	5344	0	1577	1781	1870	1573	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	356	0	59	34	21	68	210	860	0	101	488	0
Grp Sat Flow(s),veh/h/ln	1781	0	1577	1781	1870	1573	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	8.4	0.0	4.1	2.4	1.3	3.6	7.7	14.8	0.0	3.2	6.3	0.0
Cycle Q Clear(g_c), s	8.4	0.0	4.1	2.4	1.3	3.6	7.7	14.8	0.0	3.2	6.3	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	473	0	280	49	217	183	275	2217		606	2764	
V/C Ratio(X)	0.75	0.00	0.21	0.70	0.10	0.37	0.76	0.39		0.17	0.18	
Avail Cap(c_a), veh/h	911	0	280	249	217	183	683	2217		606	2764	
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	57.4	0.0	45.4	62.2	51.0	25.5	58.2	24.8	0.0	45.2	15.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.4	16.6	0.2	1.3	4.4	0.5	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	3.9	0.0	1.6	1.3	0.6	2.1	3.5	6.1	0.0	1.4	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	0.0	45.7	78.8	51.2	26.8	62.5	25.4	0.0	45.3	15.1	0.0
LnGrp LOS	E	A	D	E	D	C	E	C		D	B	
Approach Vol, veh/h		415			123			1070	A		589	A
Approach Delay, s/veh		57.8			45.3			32.7			20.3	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.6	62.0	9.5	28.9	14.8	75.8	17.4	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	5.2	16.8	4.4	6.1	9.7	8.3	10.4	5.6
Green Ext Time (p_c), s	0.1	7.3	0.0	0.1	0.6	3.7	1.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	34.8
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	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	196	24	21	235	347	14	30	566
Future Volume (vph)	1	18	196	24	21	235	347	14	30	566
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	0.29
Control Delay		39.5	8.4		26.0	11.0	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	11.0	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 82.6%	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	213	77	255	377	15	33	624
v/c Ratio	0.06	0.44	0.12	0.47	0.17	0.01	0.05	0.29
Control Delay	39.5	8.4	26.0	11.0	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	11.0	3.6	0.0	5.4	12.1
Queue Length 50th (ft)	13	0	16	45	18	0	7	115
Queue Length 95th (ft)	36	65	37	113	25	0	16	149
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	369	487	641	546	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	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	18	196	24	21	26	235	347	14	30	566	8
Future Volume (veh/h)	1	18	196	24	21	26	235	347	14	30	566	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	213	26	23	28	255	377	15	33	615	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	734	2840	1261	878	2784	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	805	881	1163	1781	3554	1578	1781	3585	52
Grp Volume(v), veh/h	21	0	213	41	0	36	255	377	15	33	305	319
Grp Sat Flow(s),veh/h/ln	1861	0	1581	1360	0	1489	1781	1777	1578	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.7	1.4	0.0	2.3	3.9	0.0	0.0	0.4	5.5	5.6
Cycle Q Clear(g_c), s	1.1	0.0	14.7	2.5	0.0	2.3	3.9	0.0	0.0	0.4	5.5	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	734	2840	1261	878	1380	1445
V/C Ratio(X)	0.05	0.00	0.63	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	755	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	43.0	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	8.8	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	6.6	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	51.8	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		234			77			647			657	
Approach Delay, s/veh		50.6			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		16.7	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

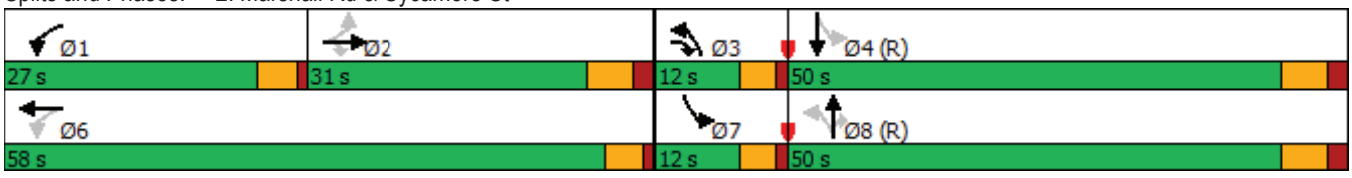
User approved pedestrian interval to be less than phase max green.

* 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	251	282	29	192	422	203	26	802
Future Volume (vph)	3	14	251	282	29	192	422	203	26	802
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	20.2	33.0	33.0	77.1	69.8	69.8	68.4	60.6
Actuated g/C Ratio		0.08	0.17	0.28	0.28	0.64	0.58	0.58	0.57	0.50
v/c Ratio		0.12	0.72	0.76	0.11	0.53	0.22	0.22	0.05	0.49
Control Delay		48.5	31.8	48.6	17.7	24.4	22.2	9.4	10.5	18.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.5	31.8	48.6	17.7	24.4	22.2	9.4	10.5	18.1
LOS		D	C	D	B	C	C	A	B	B
Approach Delay		32.8			44.0		19.5			17.9
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: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 24.1	Intersection LOS: C
Intersection Capacity Utilization 68.2%	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	273	307	54	209	459	221	28	874
v/c Ratio	0.12	0.72	0.76	0.11	0.53	0.22	0.22	0.05	0.49
Control Delay	48.5	31.8	48.6	17.7	24.4	22.2	9.4	10.5	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	31.8	48.6	17.7	24.4	22.2	9.4	10.5	18.1
Queue Length 50th (ft)	14	94	204	18	97	129	9	6	140
Queue Length 95th (ft)	32	161	231	38	#217	205	83	m21	381
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	361	377	420	787	395	2057	986	578	1786
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	0.72	0.73	0.07	0.53	0.22	0.22	0.05	0.49

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	251	282	29	20	192	422	203	26	802	2
Future Volume (veh/h)	3	14	251	282	29	20	192	422	203	26	802	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	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	273	307	32	22	209	459	221	28	872	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	67	297	387	525	387	266	344	1643	728	395	1546	4
Arrive On Green	0.18	0.18	0.18	0.15	0.38	0.38	0.06	0.46	0.46	0.03	0.57	0.57
Sat Flow, veh/h	177	1623	1572	1781	1031	709	1781	3554	1575	1781	3637	8
Grp Volume(v), veh/h	18	0	273	307	0	54	209	459	221	28	426	448
Grp Sat Flow(s),veh/h/ln	1800	0	1572	1781	0	1739	1781	1777	1575	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	19.0	16.1	0.0	2.4	7.5	9.6	10.5	1.1	18.4	18.4
Cycle Q Clear(g_c), s	1.0	0.0	19.0	16.1	0.0	2.4	7.5	9.6	10.5	1.1	18.4	18.4
Prop In Lane	0.17		1.00	1.00		0.41	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	365	0	387	525	0	652	344	1643	728	395	755	794
V/C Ratio(X)	0.05	0.00	0.71	0.58	0.00	0.08	0.61	0.28	0.30	0.07	0.56	0.56
Avail Cap(c_a), veh/h	409	0	427	584	0	776	344	1643	728	461	755	794
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	0.90	0.90	0.90	0.95	0.95	0.95
Uniform Delay (d), s/veh	40.4	0.0	41.3	30.3	0.0	24.2	20.1	19.9	20.2	18.4	19.0	19.0
Incr Delay (d2), s/veh	0.1	0.0	4.7	1.2	0.0	0.1	2.8	0.4	1.0	0.1	2.9	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.8	7.1	0.0	1.0	3.4	4.0	4.0	0.4	7.1	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	46.0	31.5	0.0	24.2	22.9	20.3	21.2	18.4	21.9	21.7
LnGrp LOS	D	A	D	C	A	C	C	C	C	B	C	C
Approach Vol, veh/h		291			361			889			902	
Approach Delay, s/veh		45.7			30.4			21.1			21.7	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	23.0	28.0	12.0	57.0		51.0	7.5	61.5				
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	25.0	7.5	44.0		* 54	7.5	44.0				
Max Q Clear Time (g_c+I1), s	18.1	21.0	9.5	20.4		4.4	3.1	12.5				
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			25.6									
HCM 6th LOS			C									

Notes

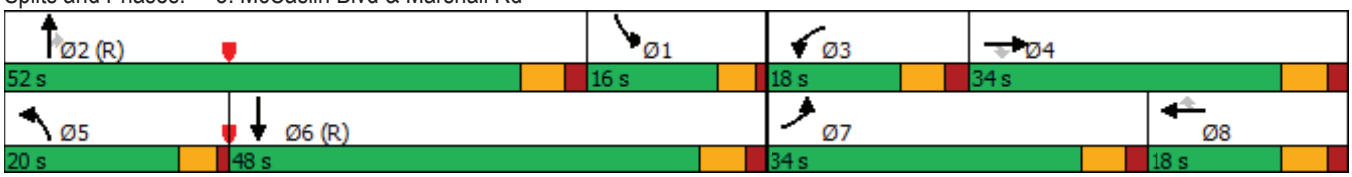
User approved pedestrian interval to be less than phase max green.

* 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)	871	48	452	77	46	42	185	563	50	89	976	585
Future Volume (vph)	871	48	452	77	46	42	185	563	50	89	976	585
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	0.78	0.79	0.73	0.56	0.30	0.13	0.57	0.31	0.08	0.30	0.55	0.40
Control Delay	55.2	61.5	15.3	66.6	55.1	0.8	57.7	26.5	0.2	53.1	31.1	0.8
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	55.2	61.5	15.3	66.6	55.1	0.8	57.7	26.5	0.2	53.1	31.1	0.8
LOS	E	E	B	E	E	A	E	C	A	D	C	A
Approach Delay		43.5			46.6			32.1			21.6	
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: 32.2	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)	663	336	491	84	50	46	201	612	54	97	1061	636
v/c Ratio	0.78	0.79	0.73	0.56	0.30	0.13	0.57	0.31	0.08	0.30	0.55	0.40
Control Delay	55.2	61.5	15.3	66.6	55.1	0.8	57.7	26.5	0.2	53.1	31.1	0.8
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	55.2	61.5	15.3	66.6	55.1	0.8	57.7	26.5	0.2	53.1	31.1	0.8
Queue Length 50th (ft)	243	247	30	63	36	0	77	120	0	36	234	0
Queue Length 95th (ft)	#394	#479	185	116	77	0	114	152	0	64	293	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	427	672	177	187	365	443	1949	716	328	1917	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	0.78	0.79	0.73	0.47	0.27	0.13	0.45	0.31	0.08	0.30	0.55	0.40

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)	871	48	452	77	46	42	185	563	50	89	976	585
Future Volume (veh/h)	871	48	452	77	46	42	185	563	50	89	976	585
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	984	0	491	84	50	46	201	612	0	97	1061	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	1123	0	367	107	155	129	264	1957		427	2262	
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	984	0	491	84	50	46	201	612	0	97	1061	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	21.4	0.0	28.0	5.6	3.0	2.5	6.8	10.1	0.0	3.0	17.5	0.0
Cycle Q Clear(g_c), s	21.4	0.0	28.0	5.6	3.0	2.5	6.8	10.1	0.0	3.0	17.5	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	1123	0	367	107	155	129	264	1957		427	2262	
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	2262	
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)	0.78	0.00	0.78	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	51.8	29.7	54.3	25.9	0.0	47.4	23.5	0.0
Incr Delay (d2), s/veh	5.4	0.0	165.2	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	1.3	3.1	4.2	0.0	1.3	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	211.2	67.7	53.0	31.4	58.8	26.3	0.0	47.7	24.2	0.0
LnGrp LOS	D	A	F	E	D	C	E	C		D	C	
Approach Vol, veh/h		1475			180			813	A		1158	A
Approach Delay, s/veh		104.5			54.4			34.4			26.2	
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	13.7	59.1	31.2	16.0
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	5.0	12.1	7.6	30.0	8.8	19.5	23.4	5.0
Green Ext Time (p_c), s	0.1	4.7	0.1	0.0	0.3	8.1	1.8	0.2

Intersection Summary	
HCM 6th Ctrl Delay	61.3
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)	5	22	35	10	54	309	30	20	189
Future Volume (vph)	5	22	35	10	54	309	30	20	189
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	81.3	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	0.01	0.07		0.12	0.07	0.15	0.03	0.03	0.09
Control Delay	38.8	0.4		27.6	2.2	3.5	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	0.4		27.6	2.2	3.5	0.1	5.3	9.7
LOS	D	A		C	A	A	A	A	A
Approach Delay	7.0			27.6		3.0			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: 7.4	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	24	72	59	336	33	22	205
v/c Ratio	0.01	0.07	0.12	0.07	0.15	0.03	0.03	0.09
Control Delay	38.8	0.4	27.6	2.2	3.5	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	0.4	27.6	2.2	3.5	0.1	5.3	9.7
Queue Length 50th (ft)	3	0	16	4	32	0	4	32
Queue Length 95th (ft)	15	0	36	7	15	0	12	50
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	615	827	2287	1018	746	2209
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	0.07	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	22	35	10	21	54	309	30	20	189	0
Future Volume (veh/h)	0	5	22	35	10	21	54	309	30	20	189	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	24	38	11	23	59	336	33	22	205	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	977	2686	1195	849	2636	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	1233	517	1155	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	5	24	42	0	30	59	336	33	22	205	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1416	0	1489	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.3	1.7	3.1	0.0	2.2	0.9	0.0	0.0	0.4	1.9	0.0
Cycle Q Clear(g_c), s	0.0	0.3	1.7	3.4	0.0	2.2	0.9	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	126	977	2686	1195	849	2636	0
V/C Ratio(X)	0.00	0.03	0.18	0.24	0.00	0.23	0.06	0.13	0.03	0.03	0.08	0.00
Avail Cap(c_a), veh/h	0	374	316	358	0	316	1025	2686	1195	922	2636	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	4.2	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.6	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	1.3	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		29			72			428			227	
Approach Delay, s/veh		51.4			52.4			0.5			4.2	
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	8.8	95.0		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		3.7	2.9	3.9		5.4				
Green Ext Time (p_c), s	0.0	2.4		0.0	0.0	1.4		0.3				

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

Notes

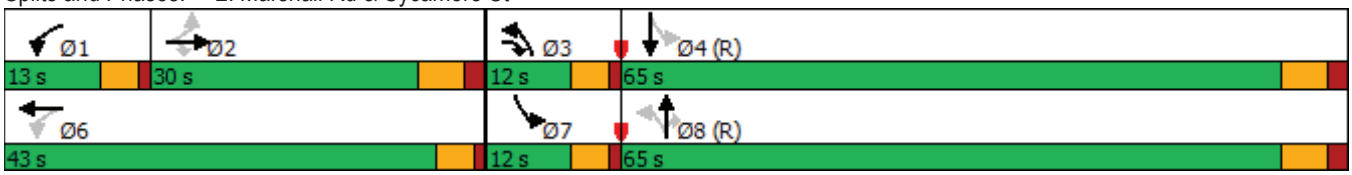
User approved pedestrian interval to be less than phase max green.

* 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)	1	9	106	112	6	64	386	131	6	248
Future Volume (vph)	1	9	106	112	6	64	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)		9.6	13.2	17.0	17.0	93.3	90.3	90.3	88.7	81.5
Actuated g/C Ratio		0.08	0.11	0.14	0.14	0.78	0.75	0.75	0.74	0.68
v/c Ratio		0.08	0.42	0.65	0.06	0.08	0.16	0.12	0.01	0.11
Control Delay		47.6	10.8	60.8	25.2	3.3	4.2	0.4	5.7	6.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		47.6	10.8	60.8	25.2	3.3	4.2	0.4	5.7	6.8
LOS		D	B	E	C	A	A	A	A	A
Approach Delay		14.0			57.2		3.2			6.8
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: 0.65	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 52.9%	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)	11	115	122	14	70	420	142	7	272
v/c Ratio	0.08	0.42	0.65	0.06	0.08	0.16	0.12	0.01	0.11
Control Delay	47.6	10.8	60.8	25.2	3.3	4.2	0.4	5.7	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	10.8	60.8	25.2	3.3	4.2	0.4	5.7	6.8
Queue Length 50th (ft)	8	0	96	5	3	12	0	1	25
Queue Length 95th (ft)	24	42	118	19	m27	79	0	6	47
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	359	288	188	557	845	2664	1198	760	2401
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	0.40	0.65	0.03	0.08	0.16	0.12	0.01	0.11

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)	1	9	106	112	6	6	64	386	131	6	248	2
Future Volume (veh/h)	1	9	106	112	6	6	64	386	131	6	248	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	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	10	115	122	7	7	70	420	142	7	270	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	37	171	208	298	173	173	749	2315	1031	588	2250	17
Arrive On Green	0.09	0.09	0.09	0.07	0.20	0.20	0.04	0.65	0.65	0.00	0.21	0.21
Sat Flow, veh/h	43	1812	1575	1781	857	857	1781	3554	1583	1781	3616	27
Grp Volume(v), veh/h	11	0	115	122	0	14	70	420	142	7	133	139
Grp Sat Flow(s),veh/h/ln	1855	0	1575	1781	0	1713	1781	1777	1583	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	8.2	7.2	0.0	0.8	1.6	5.6	4.1	0.2	7.3	7.3
Cycle Q Clear(g_c), s	0.6	0.0	8.2	7.2	0.0	0.8	1.6	5.6	4.1	0.2	7.3	7.3
Prop In Lane	0.09		1.00	1.00		0.50	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	207	0	208	298	0	347	749	2315	1031	588	1106	1161
V/C Ratio(X)	0.05	0.00	0.55	0.41	0.00	0.04	0.09	0.18	0.14	0.01	0.12	0.12
Avail Cap(c_a), veh/h	399	0	375	298	0	550	793	2315	1031	684	1106	1161
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	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	48.8	43.2	0.0	38.5	7.2	8.3	8.0	8.3	20.9	20.9
Incr Delay (d2), s/veh	0.1	0.0	2.3	0.9	0.0	0.0	0.0	0.2	0.3	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	0.3	0.0	3.3	3.3	0.0	0.3	0.6	2.1	1.4	0.1	3.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	51.1	44.1	0.0	38.5	7.2	8.4	8.3	8.3	21.1	21.1
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	C	C
Approach Vol, veh/h		126			136			632			279	
Approach Delay, s/veh		51.0			43.5			8.3			20.8	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2	3	4		6	7	8
Phs Duration (G+Y+Rc), s	13.0	17.3	9.0	80.7		30.3	5.5	84.2
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	9.2	10.2	3.6	9.3		2.8	2.2	7.6
Green Ext Time (p_c), s	0.0	0.3	0.0	1.6		0.0	0.0	3.5

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

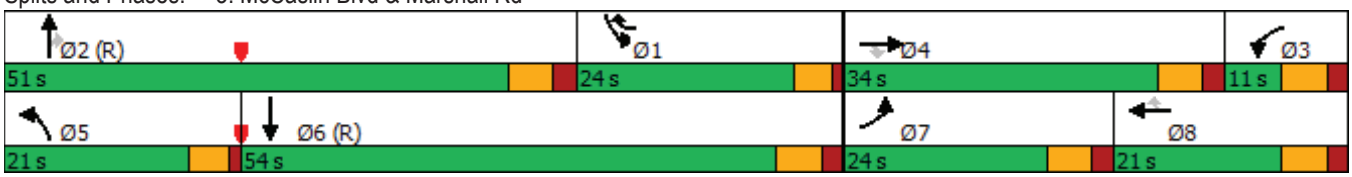
User approved pedestrian interval to be less than phase max green.

* 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)	400	24	82	42	24	104	234	1163	98	216	1166	369
Future Volume (vph)	400	24	82	42	24	104	234	1163	98	216	1166	369
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)	15.5	30.2	30.2	5.0	17.5	38.5	13.8	45.0	45.0	19.5	50.7	120.0
Actuated g/C Ratio	0.13	0.25	0.25	0.04	0.15	0.32	0.12	0.38	0.38	0.16	0.42	1.00
v/c Ratio	0.68	0.06	0.17	0.32	0.10	0.19	0.64	0.66	0.15	0.42	0.59	0.25
Control Delay	58.5	42.3	4.7	62.1	46.9	3.3	58.2	33.3	0.5	47.8	28.4	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	58.5	42.3	4.7	62.1	46.9	3.3	58.2	33.3	0.5	47.8	28.4	0.4
LOS	E	D	A	E	D	A	E	C	A	D	C	A
Approach Delay		49.0			24.0			35.0			24.9	
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: 0.68	
Intersection Signal Delay: 31.8	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)	435	26	89	46	26	113	254	1264	107	235	1267	401
v/c Ratio	0.68	0.06	0.17	0.32	0.10	0.19	0.64	0.66	0.15	0.42	0.59	0.25
Control Delay	58.5	42.3	4.7	62.1	46.9	3.3	58.2	33.3	0.5	47.8	28.4	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	58.5	42.3	4.7	62.1	46.9	3.3	58.2	33.3	0.5	47.8	28.4	0.4
Queue Length 50th (ft)	119	17	2	18	18	0	97	295	0	85	272	0
Queue Length 95th (ft)	155	m42	m12	38	46	23	139	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	272	587	472	1906	705	557	2146	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	0.58	0.06	0.17	0.32	0.10	0.19	0.54	0.66	0.15	0.42	0.59	0.25

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)	400	24	82	42	24	104	234	1163	98	216	1166	369
Future Volume (veh/h)	400	24	82	42	24	104	234	1163	98	216	1166	369
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	435	26	0	46	26	113	254	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	545	253		338	234	500	319	1915		662	2486	
Arrive On Green	0.11	0.14	0.00	0.10	0.12	0.12	0.09	0.38	0.00	0.19	0.49	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1574	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	435	26	0	46	26	113	254	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	10.1	1.5	0.0	1.5	1.5	1.5	8.6	24.7	0.0	7.1	20.3	0.0
Cycle Q Clear(g_c), s	10.1	1.5	0.0	1.5	1.5	1.5	8.6	24.7	0.0	7.1	20.3	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	545	253		338	234	500	319	1915		662	2486	
V/C Ratio(X)	0.80	0.10		0.14	0.11	0.23	0.80	0.66		0.35	0.51	
Avail Cap(c_a), veh/h	753	436		338	234	500	475	1915		662	2486	
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	0.96	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	52.2	45.5	0.0	49.5	46.6	13.3	53.4	31.1	0.0	42.1	21.0	0.0
Incr Delay (d2), s/veh	4.1	0.2	0.0	0.2	0.2	0.2	5.6	1.8	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	4.4	0.7	0.0	0.6	0.7	1.4	4.0	10.4	0.0	3.1	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	45.6	0.0	49.7	46.8	13.5	59.0	33.0	0.0	42.4	21.8	0.0
LnGrp LOS	E	D		D	D	B	E	C		D	C	
Approach Vol, veh/h		461	A		185			1518	A		1502	A
Approach Delay, s/veh		55.7			27.2			37.3			25.0	
Approach LOS		E			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	51.0	17.7	22.3	15.6	64.4	19.0	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	19.5	* 45	5.0	28.0	16.5	48.0	18.0	15.0
Max Q Clear Time (g_c+I1), s	9.1	26.7	3.5	3.5	10.6	22.3	12.1	3.5
Green Ext Time (p_c), s	0.6	8.9	0.0	0.1	0.4	10.6	0.9	0.3

Intersection Summary	
HCM 6th Ctrl Delay	34.1
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.

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	204	42	37	238	301	39	47	668
Future Volume (vph)	1	22	204	42	37	238	301	39	47	668
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		11.6			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 83.0%	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	222	128	259	327	42	51	734
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	141
Queue Length 95th (ft)	41	65	56	173	5	0	22	179
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	369	494	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	204	42	37	39	238	301	39	47	668	7
Future Volume (veh/h)	1	22	204	42	37	39	238	301	39	47	668	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	222	46	40	42	259	327	42	51	726	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	229	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	839	922	1047	1781	3554	1578	1781	3600	40
Grp Volume(v), veh/h	25	0	222	67	0	61	259	327	42	51	358	376
Grp Sat Flow(s),veh/h/ln	1863	0	1581	1297	0	1510	1781	1777	1578	1781	1777	1863
Q Serve(g_s), s	0.0	0.0	15.4	3.8	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	15.4	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	0.66	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	697	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	43.3	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	9.8	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	7.0	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	53.1	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		247			128			628			785	
Approach Delay, s/veh		51.6			40.3			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		17.4	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		12.1
HCM 6th LOS		B

Notes

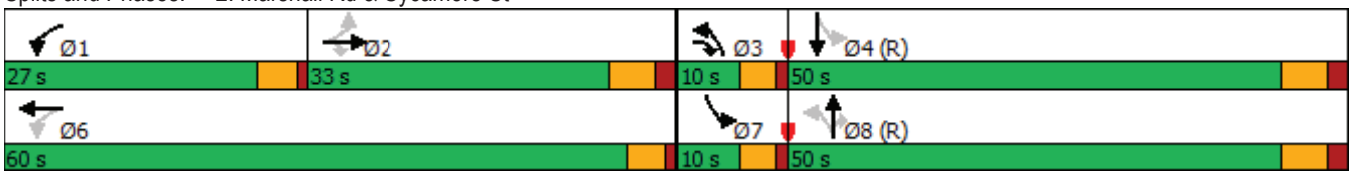
User approved pedestrian interval to be less than phase max green.

* 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	251	335	33	196	554	202	28	926
Future Volume (vph)	4	18	251	335	33	196	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	28.0	34.2	34.2	75.9	68.9	68.9	59.5	52.0
Actuated g/C Ratio		0.09	0.23	0.28	0.28	0.63	0.57	0.57	0.50	0.43
v/c Ratio		0.16	0.61	0.86	0.11	0.54	0.30	0.23	0.07	0.66
Control Delay		48.5	29.0	57.3	17.8	24.4	12.1	0.9	11.1	23.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.5	29.0	57.3	17.8	24.4	12.1	0.9	11.1	23.5
LOS		D	C	E	B	C	B	A	B	C
Approach Delay		30.6			51.8		12.3			23.1
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: 24.2	Intersection LOS: C
Intersection Capacity Utilization 74.6%	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)	24	273	364	58	213	602	220	30	1010
v/c Ratio	0.16	0.61	0.86	0.11	0.54	0.30	0.23	0.07	0.66
Control Delay	48.5	29.0	57.3	17.8	24.4	12.1	0.9	11.1	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	29.0	57.3	17.8	24.4	12.1	0.9	11.1	23.5
Queue Length 50th (ft)	18	109	250	20	57	90	0	7	171
Queue Length 95th (ft)	38	183	269	39	m#237	198	m15	m22	456
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	390	449	426	819	397	2032	976	438	1534
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	0.61	0.85	0.07	0.54	0.30	0.23	0.07	0.66

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	251	335	33	20	196	554	202	28	926	3
Future Volume (veh/h)	4	18	251	335	33	20	196	554	202	28	926	3
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	273	364	36	22	213	602	220	30	1007	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	305	369	568	437	267	312	1539	682	318	1503	4
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	1619	1572	1781	1085	663	1781	3554	1574	1781	3634	11
Grp Volume(v), veh/h	24	0	273	364	0	58	213	602	220	30	492	518
Grp Sat Flow(s),veh/h/ln	1798	0	1572	1781	0	1748	1781	1777	1574	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	19.3	19.0	0.0	2.5	5.5	13.9	11.1	1.1	12.9	12.9
Cycle Q Clear(g_c), s	1.3	0.0	19.3	19.0	0.0	2.5	5.5	13.9	11.1	1.1	12.9	12.9
Prop In Lane	0.17		1.00	1.00		0.38	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	374	0	369	568	0	705	312	1539	682	318	735	773
V/C Ratio(X)	0.06	0.00	0.74	0.64	0.00	0.08	0.68	0.39	0.32	0.09	0.67	0.67
Avail Cap(c_a), veh/h	438	0	426	587	0	808	312	1539	682	353	735	773
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	0.85	0.85	0.85	0.94	0.94	0.94
Uniform Delay (d), s/veh	40.0	0.0	42.5	28.8	0.0	22.1	26.5	23.2	22.4	19.2	7.2	7.2
Incr Delay (d2), s/veh	0.1	0.0	5.7	2.3	0.0	0.0	5.1	0.6	1.1	0.1	4.5	4.3
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	8.0	8.4	0.0	1.0	2.9	5.9	4.2	0.5	3.5	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	0.0	48.3	31.1	0.0	22.2	31.5	23.9	23.5	19.3	11.7	11.5
LnGrp LOS	D	A	D	C	A	C	C	C	C	B	B	B
Approach Vol, veh/h		297			422			1035			1040	
Approach Delay, s/veh		47.6			29.9			25.4			11.8	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	25.7	28.6	10.0	55.6		54.4	7.7	58.0				
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	21.3	7.5	14.9		4.5	3.1	15.9				
Green Ext Time (p_c), s	0.2	0.5	0.0	7.2		0.3	0.0	5.1				

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

Notes

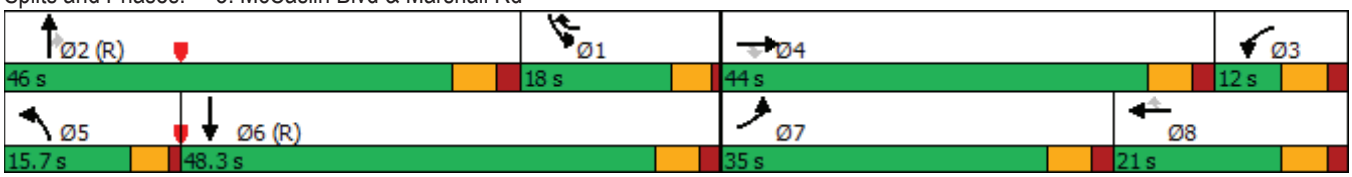
User approved pedestrian interval to be less than phase max green.

* 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)	973	56	515	104	57	181	222	1377	67	270	1385	661
Future Volume (vph)	973	56	515	104	57	181	222	1377	67	270	1385	661
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	0.77	0.82	0.11	0.76	0.78	0.45
Control Delay	46.0	27.1	41.1	63.0	50.9	10.7	69.8	40.3	0.3	65.2	37.1	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	46.0	27.1	41.1	63.0	50.9	10.7	69.8	40.3	0.3	65.2	37.1	0.9
LOS	D	C	D	E	D	B	E	D	A	E	D	A
Approach Delay		43.7			33.3			42.6			30.1	
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: 37.4	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)	1058	61	560	113	62	197	241	1497	73	293	1505	718
v/c Ratio	0.85	0.12	0.93	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.45
Control Delay	46.0	27.1	41.1	63.0	50.9	10.7	69.8	40.3	0.3	65.2	37.1	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	46.0	27.1	41.1	63.0	50.9	10.7	69.8	40.3	0.3	65.2	37.1	0.9
Queue Length 50th (ft)	297	39	275	44	44	24	95	399	0	115	390	0
Queue Length 95th (ft)	#351	m46	m#449	#85	88	58	#152	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	1934	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	0.75	0.82	0.11	0.76	0.78	0.45

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)	973	56	515	104	57	181	222	1377	67	270	1385	661
Future Volume (veh/h)	973	56	515	104	57	181	222	1377	67	270	1385	661
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	1058	61	0	113	62	197	241	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	1162	171		916	234	371	297	1702		381	1891	
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	1058	61	0	113	62	197	241	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	24.6	3.7	0.0	3.0	3.6	4.9	8.2	33.2	0.0	9.9	31.6	0.0
Cycle Q Clear(g_c), s	24.6	3.7	0.0	3.0	3.6	4.9	8.2	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	1162	171		916	234	371	297	1702		381	1891	
V/C Ratio(X)	0.91	0.36		0.12	0.27	0.53	0.81	0.88		0.77	0.80	
Avail Cap(c_a), veh/h	1214	592		916	234	371	323	1702		389	1891	
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)	0.66	0.66	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	53.9	37.7	0.0	51.9	33.7	0.0
Incr Delay (d2), s/veh	7.1	0.8	0.0	0.1	0.6	1.5	13.6	6.9	0.0	8.9	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	4.1	14.7	0.0	4.8	13.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	52.0	0.0	33.6	48.1	17.0	67.5	44.6	0.0	60.7	37.3	0.0
LnGrp LOS	D	D		C	D	B	E	D		E	D	
Approach Vol, veh/h		1119	A		372			1738	A		1798	A
Approach Delay, s/veh		52.0			27.2			47.8			41.1	
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	14.8	50.4	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	10.2	33.6	26.6	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	24	6	31	2	8	0	36	24	5	2	19	37
Future Vol, veh/h	24	6	31	2	8	0	36	24	5	2	19	37
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	33	8	42	4	16	0	54	36	7	3	25	49
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%	39%	20%	3%
Vol Thru, %	37%	10%	80%	33%
Vol Right, %	8%	51%	0%	64%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	61	10	58
LT Vol	36	24	2	2
Through Vol	24	6	8	19
RT Vol	5	31	0	37
Lane Flow Rate	97	84	20	77
Geometry Grp	1	1	1	1
Degree of Util (X)	0.113	0.093	0.024	0.081
Departure Headway (Hd)	4.204	3.989	4.307	3.778
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	846	886	818	936
Service Time	2.264	2.069	2.4	1.851
HCM Lane V/C Ratio	0.115	0.095	0.024	0.082
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)	4	16	13	3	44	241	17	15	154
Future Volume (vph)	4	16	13	3	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		26.1	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		26.1	3.3	4.8	0.1	5.2	9.6
LOS	D	A		C	A	A	A	A	A
Approach Delay	7.6			26.1		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	29	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	26.1	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	26.1	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	18	10	24	0	10	42
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	372	367	628	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	3	11	44	241	17	15	154	0
Future Volume (veh/h)	0	4	16	13	3	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	3	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	135	114	137	24	104	1026	2746	1222	921	2689	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	1137	336	1437	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	4	17	17	0	12	48	262	18	16	167	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1472	0	1437	1781	1777	1581	1781	1777	0
Q Serve(g_s), s	0.0	0.2	1.2	0.8	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	0.82		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	135	114	161	0	104	1026	2746	1222	921	2689	0
V/C Ratio(X)	0.00	0.03	0.15	0.11	0.00	0.12	0.05	0.10	0.01	0.02	0.06	0.00
Avail Cap(c_a), veh/h	0	374	316	365	0	305	1078	2746	1222	1002	2689	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	52.2	52.1	0.0	52.1	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	52.8	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			29			328			183	
Approach Delay, s/veh		52.6			52.5			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		14.7	8.5	96.8		14.7				
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

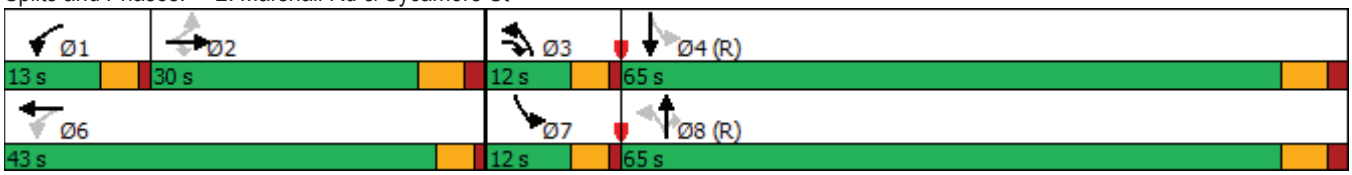
User approved pedestrian interval to be less than phase max green.

* 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)	8	10	175	109	4	87	297	179	6	181
Future Volume (vph)	8	10	175	109	4	87	297	179	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	19.7	19.7	90.6	87.6	87.6	85.6	78.4
Actuated g/C Ratio		0.08	0.13	0.16	0.16	0.76	0.73	0.73	0.71	0.65
v/c Ratio		0.15	0.52	0.56	0.04	0.11	0.12	0.17	0.01	0.09
Control Delay		49.8	10.0	52.0	21.3	6.0	7.4	2.1	5.2	6.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		49.8	10.0	52.0	21.3	6.0	7.4	2.1	5.2	6.6
LOS		D	B	D	C	A	A	A	A	A
Approach Delay		13.8			49.2		5.5			6.5
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: 0.56	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 52.7%	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)	20	190	118	12	95	323	195	7	200
v/c Ratio	0.15	0.52	0.56	0.04	0.11	0.12	0.17	0.01	0.09
Control Delay	49.8	10.0	52.0	21.3	6.0	7.4	2.1	5.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	10.0	52.0	21.3	6.0	7.4	2.1	5.2	6.6
Queue Length 50th (ft)	15	0	81	3	17	33	0	1	16
Queue Length 95th (ft)	35	53	114	17	52	97	37	5	29
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	316	376	212	543	873	2584	1180	798	2307
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	0.51	0.56	0.02	0.11	0.13	0.17	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)	8	10	175	109	4	7	87	297	179	6	181	3
Future Volume (veh/h)	8	10	175	109	4	7	87	297	179	6	181	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	11	190	118	4	8	95	323	195	7	197	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	142	280	336	136	272	760	2163	963	578	2069	31
Arrive On Green	0.14	0.14	0.14	0.07	0.25	0.25	0.04	0.61	0.61	0.00	0.19	0.19
Sat Flow, veh/h	623	1036	1578	1781	556	1111	1781	3554	1582	1781	3583	54
Grp Volume(v), veh/h	20	0	190	118	0	12	95	323	195	7	98	102
Grp Sat Flow(s),veh/h/ln	1659	0	1578	1781	0	1667	1781	1777	1582	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	13.5	6.6	0.0	0.7	2.5	4.7	6.6	0.2	5.4	5.4
Cycle Q Clear(g_c), s	1.1	0.0	13.5	6.6	0.0	0.7	2.5	4.7	6.6	0.2	5.4	5.4
Prop In Lane	0.45		1.00	1.00		0.67	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	271	0	280	336	0	409	760	2163	963	578	1026	1074
V/C Ratio(X)	0.07	0.00	0.68	0.35	0.00	0.03	0.13	0.15	0.20	0.01	0.10	0.10
Avail Cap(c_a), veh/h	373	0	379	337	0	535	800	2163	963	674	1026	1074
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	45.1	0.0	46.2	38.7	0.0	34.4	9.0	10.1	10.5	10.4	22.7	22.7
Incr Delay (d2), s/veh	0.1	0.0	2.9	0.6	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	0.5	0.0	5.5	3.0	0.0	0.3	0.9	1.8	2.3	0.1	2.3	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	0.0	49.1	39.3	0.0	34.5	9.1	10.2	10.9	10.4	22.9	22.9
LnGrp LOS	D	A	D	D	A	C	A	B	B	B	C	C
Approach Vol, veh/h		210			130			613			207	
Approach Delay, s/veh		48.7			38.9			10.3			22.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	12.9	22.5	9.3	75.3		35.4	5.5	79.1				
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	8.6	15.5	4.5	7.4		2.7	2.2	8.6				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.2		0.0	0.0	2.9				

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

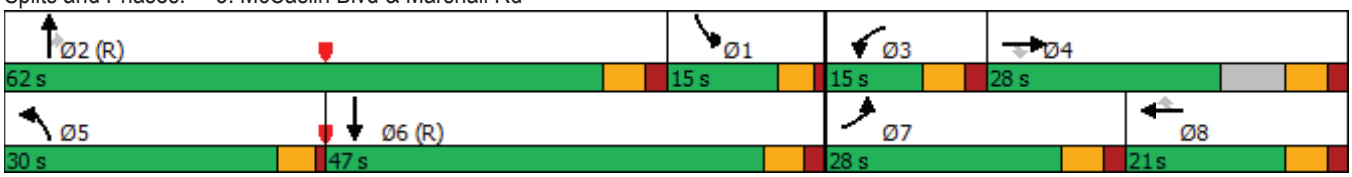
User approved pedestrian interval to be less than phase max green.

* 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)	424	20	63	31	19	63	197	791	73	93	449	348
Future Volume (vph)	424	20	63	31	19	63	197	791	73	93	449	348
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)	17.7	17.7	34.3	7.6	19.3	19.3	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	0.71	0.70	0.12	0.32	0.07	0.16	0.60	0.38	0.10	0.35	0.23	0.24
Control Delay	60.6	67.8	0.5	64.3	48.7	0.8	60.5	24.0	0.2	58.3	23.9	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	60.6	67.8	0.5	64.3	48.7	0.8	60.5	24.0	0.2	58.3	23.9	0.4
LOS	E	E	A	E	D	A	E	C	A	E	C	A
Approach Delay		55.3			26.5			29.2			18.3	
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: 0.71	
Intersection Signal Delay: 30.5	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)	323	160	68	34	21	68	214	860	79	101	488	378
v/c Ratio	0.71	0.70	0.12	0.32	0.07	0.16	0.60	0.38	0.10	0.35	0.23	0.24
Control Delay	60.6	67.8	0.5	64.3	48.7	0.8	60.5	24.0	0.2	58.3	23.9	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	60.6	67.8	0.5	64.3	48.7	0.8	60.5	24.0	0.2	58.3	23.9	0.4
Queue Length 50th (ft)	140	138	0	27	15	0	87	168	0	40	91	0
Queue Length 95th (ft)	187	214	0	62	41	0	125	204	0	70	124	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	228	547	126	285	426	694	2260	795	286	2151	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	0.57	0.70	0.12	0.27	0.07	0.16	0.31	0.38	0.10	0.35	0.23	0.24

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	20	63	31	19	63	197	791	73	93	449	348
Future Volume (veh/h)	424	20	63	31	19	63	197	791	73	93	449	348
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	477	0	68	34	21	68	214	860	0	101	488	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	603	0	322	49	222	187	281	2269		461	2595	
Arrive On Green	0.11	0.00	0.20	0.03	0.12	0.12	0.08	0.44	0.00	0.13	0.51	0.00
Sat Flow, veh/h	5344	0	1578	1781	1870	1573	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	477	0	68	34	21	68	214	860	0	101	488	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	11.0	0.0	4.5	2.4	1.3	3.7	7.6	14.2	0.0	3.3	6.5	0.0
Cycle Q Clear(g_c), s	11.0	0.0	4.5	2.4	1.3	3.7	7.6	14.2	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	603	0	322	49	222	187	281	2269		461	2595	
V/C Ratio(X)	0.79	0.00	0.21	0.69	0.09	0.36	0.76	0.38		0.22	0.19	
Avail Cap(c_a), veh/h	933	0	322	127	223	187	699	2269		461	2595	
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	0.00	0.94	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.4	0.0	41.7	60.7	49.5	28.0	56.7	23.4	0.0	48.7	16.8	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.3	15.9	0.2	1.2	4.2	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	5.0	0.0	1.8	1.3	0.6	2.0	3.5	5.8	0.0	1.4	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.9	0.0	42.0	76.6	49.6	29.2	60.9	23.9	0.0	49.0	17.0	0.0
LnGrp LOS	E	A	D	E	D	C	E	C		D	B	
Approach Vol, veh/h		545			123			1074	A		589	A
Approach Delay, s/veh		55.0			45.8			31.3			22.5	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.8	62.0	9.5	31.7	14.7	70.0	20.2	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	6.5	9.6	8.5	13.0	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	35.4
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	7.1
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	20	3	0	10	14	19	0	17	7
Future Vol, veh/h	7	10	10	20	3	0	10	14	19	0	17	7
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	22	3	0	11	16	21	0	25	10
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	7.4	7	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	26%	87%	0%
Vol Thru, %	33%	37%	13%	71%
Vol Right, %	44%	37%	0%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	27	23	24
LT Vol	10	7	20	0
Through Vol	14	10	3	17
RT Vol	19	10	0	7
Lane Flow Rate	48	31	25	35
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.035	0.03	0.037
Departure Headway (Hd)	3.805	4.063	4.277	3.859
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	938	879	836	925
Service Time	1.84	2.097	2.31	1.895
HCM Lane V/C Ratio	0.051	0.035	0.03	0.038
HCM Control Delay	7	7.2	7.4	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	20	198	24	23	235	347	14	30	567
Future Volume (vph)	1	20	198	24	23	235	347	14	30	567
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	0.29
Control Delay		39.6	8.4		26.2	11.0	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		39.6	8.4		26.2	11.0	3.6	0.0	5.4	12.1
LOS		D	A		C	B	A	A	A	B
Approach Delay		11.4			26.2		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)	23	215	79	255	377	15	33	625
v/c Ratio	0.06	0.44	0.12	0.47	0.17	0.01	0.05	0.29
Control Delay	39.6	8.4	26.2	11.0	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	39.6	8.4	26.2	11.0	3.6	0.0	5.4	12.1
Queue Length 50th (ft)	15	0	16	44	18	0	7	115
Queue Length 95th (ft)	38	65	38	113	25	0	16	149
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	370	488	643	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	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	20	198	24	23	26	235	347	14	30	567	8
Future Volume (veh/h)	1	20	198	24	23	26	235	347	14	30	567	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	22	215	26	25	28	255	377	15	33	616	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	36	391	336	216	199	241	733	2840	1261	878	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	20	1842	1581	787	939	1136	1781	3554	1578	1781	3585	52
Grp Volume(v), veh/h	23	0	215	42	0	37	255	377	15	33	305	320
Grp Sat Flow(s),veh/h/ln	1863	0	1581	1367	0	1494	1781	1777	1578	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.9	1.3	0.0	2.4	3.9	0.0	0.0	0.4	5.6	5.6
Cycle Q Clear(g_c), s	1.2	0.0	14.9	2.6	0.0	2.4	3.9	0.0	0.0	0.4	5.6	5.6
Prop In Lane	0.04		1.00	0.62		0.76	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	427	0	336	339	0	317	733	2840	1261	878	1380	1445
V/C Ratio(X)	0.05	0.00	0.64	0.12	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	339	0	317	755	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	37.7	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	0.2	0.0	9.0	0.8	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	0.6	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	2.5	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		238			79			647			658	
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	7.8	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		4.6				
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

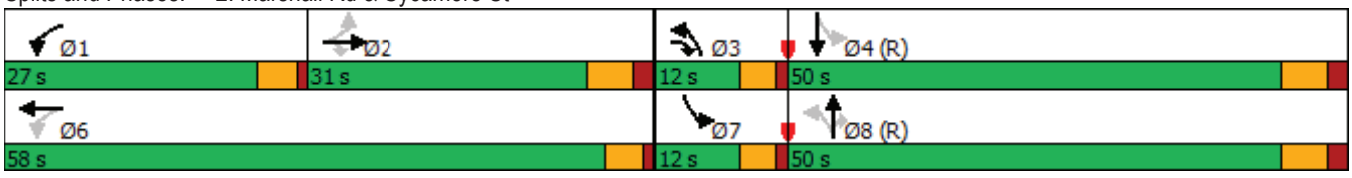
User approved pedestrian interval to be less than phase max green.

* 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	14	246	301	30	222	422	226	26	802
Future Volume (vph)	3	14	246	301	30	222	422	226	26	802
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	23.9	33.2	33.2	76.9	69.5	69.5	64.4	56.6
Actuated g/C Ratio		0.08	0.20	0.28	0.28	0.64	0.58	0.58	0.54	0.47
v/c Ratio		0.12	0.64	0.80	0.11	0.57	0.22	0.25	0.05	0.53
Control Delay		48.5	27.7	51.6	17.8	25.4	22.0	9.0	10.6	19.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.5	27.7	51.6	17.8	25.4	22.0	9.0	10.6	19.8
LOS		D	C	D	B	C	C	A	B	B
Approach Delay		29.0			46.8		19.5			19.5
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: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 71.0%	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	267	327	55	241	459	246	28	877
v/c Ratio	0.12	0.64	0.80	0.11	0.57	0.22	0.25	0.05	0.53
Control Delay	48.5	27.7	51.6	17.8	25.4	22.0	9.0	10.6	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	27.7	51.6	17.8	25.4	22.0	9.0	10.6	19.8
Queue Length 50th (ft)	14	93	220	18	112	128	12	6	144
Queue Length 95th (ft)	32	162	247	39	#289	204	86	m21	383
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	361	415	420	788	422	2050	994	548	1667
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	0.78	0.07	0.57	0.22	0.25	0.05	0.53

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	246	301	30	20	222	422	226	26	802	5
Future Volume (veh/h)	3	14	246	301	30	20	222	422	226	26	802	5
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	267	327	33	22	241	459	246	28	872	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	67	293	382	539	398	265	337	1621	718	383	1518	9
Arrive On Green	0.18	0.18	0.18	0.16	0.38	0.38	0.06	0.46	0.46	0.03	0.56	0.56
Sat Flow, veh/h	176	1624	1572	1781	1045	697	1781	3554	1575	1781	3623	21
Grp Volume(v), veh/h	18	0	267	327	0	55	241	459	246	28	428	449
Grp Sat Flow(s),veh/h/ln	1800	0	1572	1781	0	1742	1781	1777	1575	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	18.6	17.3	0.0	2.4	7.5	9.7	12.1	1.1	18.8	18.8
Cycle Q Clear(g_c), s	1.0	0.0	18.6	17.3	0.0	2.4	7.5	9.7	12.1	1.1	18.8	18.8
Prop In Lane	0.17		1.00	1.00		0.40	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	360	0	382	539	0	664	337	1621	718	383	744	782
V/C Ratio(X)	0.05	0.00	0.70	0.61	0.00	0.08	0.71	0.28	0.34	0.07	0.57	0.57
Avail Cap(c_a), veh/h	409	0	427	582	0	777	337	1621	718	450	744	782
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	40.7	0.0	41.4	30.1	0.0	23.7	24.1	20.4	21.0	18.8	19.6	19.6
Incr Delay (d2), s/veh	0.1	0.0	4.4	1.6	0.0	0.1	6.3	0.4	1.2	0.1	3.1	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.6	7.6	0.0	1.0	3.0	4.0	4.6	0.4	7.3	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	0.0	45.8	31.7	0.0	23.8	30.4	20.8	22.2	18.9	22.7	22.5
LnGrp LOS	D	A	D	C	A	C	C	C	C	B	C	C
Approach Vol, veh/h		285			382			946			905	
Approach Delay, s/veh		45.5			30.6			23.6			22.5	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4		6	7	8
Phs Duration (G+Y+Rc), s	24.1	27.6	12.0	56.3		51.7	7.5	60.7
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	19.3	20.6	9.5	20.8		4.4	3.1	14.1
Green Ext Time (p_c), s	0.3	0.4	0.0	5.7		0.3	0.0	4.1

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

Notes

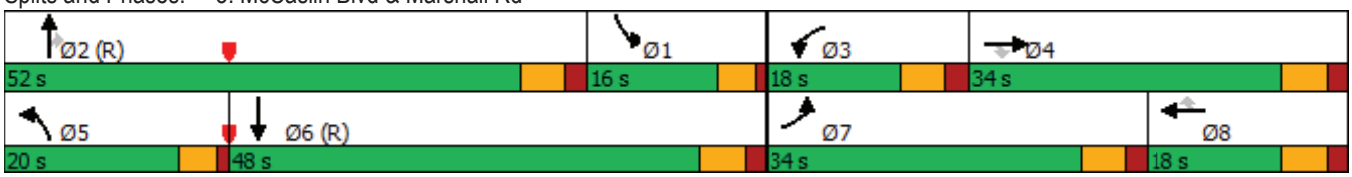
User approved pedestrian interval to be less than phase max green.

* 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)	883	48	454	77	46	42	189	563	50	89	976	634
Future Volume (vph)	883	48	454	77	46	42	189	563	50	89	976	634
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	12.4	46.0	46.0	11.5	45.1	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	0.44
Control Delay	57.1	63.5	16.0	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	57.1	63.5	16.0	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		45.1			46.6			32.2			21.1	
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: 0.79	
Intersection Signal Delay: 32.5	Intersection LOS: C
Intersection Capacity Utilization 70.9%	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)	672	340	493	84	50	46	205	612	54	97	1061	689
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	0.44
Control Delay	57.1	63.5	16.0	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	57.1	63.5	16.0	66.6	55.2	0.8	57.7	26.5	0.2	53.1	31.2	0.9
Queue Length 50th (ft)	265	269	33	63	36	0	79	120	0	36	235	0
Queue Length 95th (ft)	#400	m#480	189	116	77	0	116	152	0	64	293	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	1911	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	0.44

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)	883	48	454	77	46	42	189	563	50	89	976	634
Future Volume (veh/h)	883	48	454	77	46	42	189	563	50	89	976	634
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	997	0	493	84	50	46	205	612	0	97	1061	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	1133	0	367	107	152	126	268	1957		427	2256	
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	997	0	493	84	50	46	205	612	0	97	1061	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	21.7	0.0	28.0	5.6	3.0	2.5	7.0	10.1	0.0	3.0	17.6	0.0
Cycle Q Clear(g_c), s	21.7	0.0	28.0	5.6	3.0	2.5	7.0	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	1133	0	367	107	152	126	268	1957		427	2256	
V/C Ratio(X)	0.88	0.00	1.34	0.79	0.33	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	2256	
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)	0.76	0.00	0.76	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.8	0.0	46.0	55.7	52.1	29.9	54.3	25.9	0.0	47.4	23.6	0.0
Incr Delay (d2), s/veh	5.5	0.0	167.2	12.1	1.3	1.8	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	10.0	0.0	27.8	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	213.2	67.7	53.3	31.7	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		1490			180			817	A		1158	A
Approach Delay, s/veh		104.9			54.5			34.5			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	31.4	15.7
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	9.0	19.6	23.7	5.0
Green Ext Time (p_c), s	0.1	4.7	0.1	0.0	0.3	8.1	1.8	0.2

Intersection Summary	
HCM 6th Ctrl Delay	61.6
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	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	5	21	11	8	0	24	23	15	1	18	25
Future Vol, veh/h	18	5	21	11	8	0	24	23	15	1	18	25
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	5	29	12	9	0	36	34	16	1	24	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	7.3	7.5	7.5	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	41%	58%	2%
Vol Thru, %	37%	11%	42%	41%
Vol Right, %	24%	48%	0%	57%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	44	19	44
LT Vol	24	18	11	1
Through Vol	23	5	8	18
RT Vol	15	21	0	25
Lane Flow Rate	86	59	21	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.096	0.065	0.025	0.062
Departure Headway (Hd)	4.014	3.961	4.347	3.8
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	896	816	935
Service Time	2.062	2.023	2.415	1.856
HCM Lane V/C Ratio	0.097	0.066	0.026	0.062
HCM Control Delay	7.5	7.3	7.5	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	7	23	35	12	59	312	30	22	190
Future Volume (vph)	7	23	35	12	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		27.1	1.9	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		27.1	1.9	3.3	0.3	5.3	9.7
LOS	D	A		C	A	A	A	A	A
Approach Delay	9.7			27.1		2.8			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: 7.4	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	76	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	27.1	1.9	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	27.1	1.9	3.3	0.3	5.3	9.7
Queue Length 50th (ft)	5	0	16	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	12	23	59	312	30	22	190	0
Future Volume (veh/h)	0	7	23	35	12	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	13	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	156	49	100	975	2680	1192	848	2631	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	1167	568	1172	1781	3554	1581	1781	3647	0
Grp Volume(v), veh/h	0	8	25	44	0	32	64	339	33	24	207	0
Grp Sat Flow(s),veh/h/ln	0	1870	1579	1420	0	1486	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	0.86		0.79	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	160	135	177	0	127	975	2680	1192	848	2631	0
V/C Ratio(X)	0.00	0.05	0.19	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	358	0	316	1021	2680	1192	918	2631	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	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	51.6	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			76			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

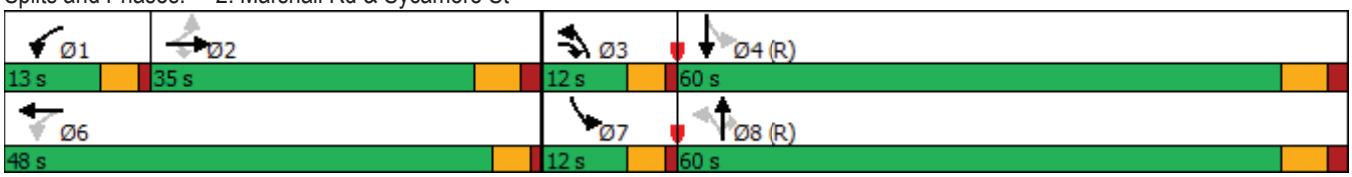
User approved pedestrian interval to be less than phase max green.

* 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)	9	11	190	148	7	90	386	154	6	248
Future Volume (vph)	9	11	190	148	7	90	386	154	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)		11.1	16.6	20.9	20.9	89.5	86.5	86.5	84.4	77.2
Actuated g/C Ratio		0.09	0.14	0.17	0.17	0.75	0.72	0.72	0.70	0.64
v/c Ratio		0.15	0.52	0.72	0.05	0.12	0.16	0.14	0.01	0.12
Control Delay		47.8	9.2	60.4	22.8	4.3	5.3	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		47.8	9.2	60.4	22.8	4.3	5.3	0.4	7.2	8.6
LOS		D	A	E	C	A	A	A	A	A
Approach Delay		12.9			57.2		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: 0.72	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 54.9%	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	207	161	15	98	420	167	7	274
v/c Ratio	0.15	0.52	0.72	0.05	0.12	0.16	0.14	0.01	0.12
Control Delay	47.8	9.2	60.4	22.8	4.3	5.3	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	47.8	9.2	60.4	22.8	4.3	5.3	0.4	7.2	8.6
Queue Length 50th (ft)	17	0	114	5	11	26	0	1	32
Queue Length 95th (ft)	36	51	141	19	40	88	0	7	53
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	381	403	224	632	810	2550	1160	727	2272
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	0.51	0.72	0.02	0.12	0.16	0.14	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)	9	11	190	148	7	6	90	386	154	6	248	4
Future Volume (veh/h)	9	11	190	148	7	6	90	386	154	6	248	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	207	161	8	7	98	420	167	7	270	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	140	152	301	349	238	208	685	2115	942	523	2021	30
Arrive On Green	0.15	0.15	0.15	0.07	0.26	0.26	0.04	0.60	0.60	0.00	0.19	0.19
Sat Flow, veh/h	638	1014	1579	1781	919	804	1781	3554	1582	1781	3585	53
Grp Volume(v), veh/h	22	0	207	161	0	15	98	420	167	7	134	140
Grp Sat Flow(s),veh/h/ln	1652	0	1579	1781	0	1723	1781	1777	1582	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	14.7	8.5	0.0	0.8	2.7	6.5	5.7	0.2	7.5	7.6
Cycle Q Clear(g_c), s	1.2	0.0	14.7	8.5	0.0	0.8	2.7	6.5	5.7	0.2	7.5	7.6
Prop In Lane	0.45		1.00	1.00		0.47	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	292	0	301	349	0	446	685	2115	942	523	1002	1049
V/C Ratio(X)	0.08	0.00	0.69	0.46	0.00	0.03	0.14	0.20	0.18	0.01	0.13	0.13
Avail Cap(c_a), veh/h	440	0	445	349	0	625	725	2115	942	619	1002	1049
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	43.8	0.0	45.3	38.6	0.0	33.3	9.8	11.2	11.0	11.1	24.4	24.4
Incr Delay (d2), s/veh	0.1	0.0	2.8	1.0	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	5.9	4.1	0.0	0.3	1.0	2.5	2.0	0.1	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	0.0	48.1	39.5	0.0	33.3	9.9	11.3	11.4	11.1	24.6	24.6
LnGrp LOS	D	A	D	D	A	C	A	B	B	B	C	C
Approach Vol, veh/h		229			176			685			281	
Approach Delay, s/veh		47.7			39.0			11.1			24.3	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	13.0	24.0	9.3	73.7	37.0	5.5	77.4
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	16.7	4.7	9.6	2.8	2.2	8.5
Green Ext Time (p_c), s	0.0	0.6	0.0	1.6	0.0	0.0	3.6

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

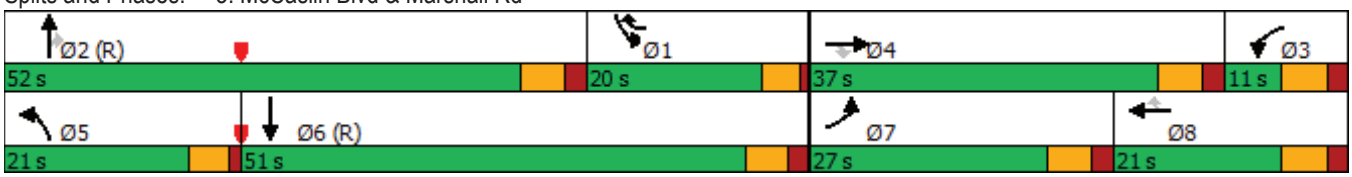
User approved pedestrian interval to be less than phase max green.

* 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)	509	26	91	42	24	104	238	1163	98	216	1166	414
Future Volume (vph)	509	26	91	42	24	104	238	1163	98	216	1166	414
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)	18.5	13.5	13.5	14.0	15.0	25.4	14.0	56.9	56.9	15.5	58.4	120.0
Actuated g/C Ratio	0.15	0.11	0.11	0.12	0.12	0.21	0.12	0.47	0.47	0.13	0.49	1.00
v/c Ratio	0.72	0.13	0.30	0.12	0.11	0.26	0.65	0.52	0.13	0.53	0.51	0.28
Control Delay	58.8	51.6	6.3	47.5	48.0	4.2	58.3	25.2	0.3	53.7	24.6	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	58.8	51.6	6.3	47.5	48.0	4.2	58.3	25.2	0.3	53.7	24.6	0.5
LOS	E	D	A	D	D	A	E	C	A	D	C	A
Approach Delay		50.8			21.1			28.8			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: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 65.0%	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)	553	28	99	46	26	113	259	1264	107	235	1267	450
v/c Ratio	0.72	0.13	0.30	0.12	0.11	0.26	0.65	0.52	0.13	0.53	0.51	0.28
Control Delay	58.8	51.6	6.3	47.5	48.0	4.2	58.3	25.2	0.3	53.7	24.6	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	58.8	51.6	6.3	47.5	48.0	4.2	58.3	25.2	0.3	53.7	24.6	0.5
Queue Length 50th (ft)	151	22	5	14	18	0	100	280	0	89	276	0
Queue Length 95th (ft)	192	m40	m12	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	400	232	430	472	2409	841	443	2474	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	0.63	0.06	0.19	0.12	0.11	0.26	0.55	0.52	0.13	0.53	0.51	0.28

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)	509	26	91	42	24	104	238	1163	98	216	1166	414
Future Volume (veh/h)	509	26	91	42	24	104	238	1163	98	216	1166	414
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		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	553	28	0	46	26	113	259	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	672	117		677	234	447	324	1957		546	2350	
Arrive On Green	0.13	0.06	0.00	0.20	0.12	0.12	0.09	0.38	0.00	0.16	0.46	0.00
Sat Flow, veh/h	5023	1870	1585	3456	1870	1574	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	553	28	0	46	26	113	259	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	12.9	1.7	0.0	1.3	1.5	1.7	8.8	24.3	0.0	7.4	21.4	0.0
Cycle Q Clear(g_c), s	12.9	1.7	0.0	1.3	1.5	1.7	8.8	24.3	0.0	7.4	21.4	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	672	117		677	234	447	324	1957		546	2350	
V/C Ratio(X)	0.82	0.24		0.07	0.11	0.25	0.80	0.65		0.43	0.54	
Avail Cap(c_a), veh/h	879	483		677	234	447	475	1957		546	2350	
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	0.92	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	50.6	53.5	0.0	39.3	46.6	14.3	53.3	30.3	0.0	45.6	23.3	0.0
Incr Delay (d2), s/veh	4.5	1.0	0.0	0.0	0.2	0.3	6.0	1.7	0.0	0.5	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	5.6	0.8	0.0	0.6	0.7	1.4	4.1	10.2	0.0	3.2	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	54.5	0.0	39.4	46.8	14.6	59.3	32.0	0.0	46.2	24.1	0.0
LnGrp LOS	E	D		D	D	B	E	C		D	C	
Approach Vol, veh/h		581	A		185			1523	A		1502	A
Approach Delay, s/veh		55.1			25.3			36.6			27.6	
Approach LOS		E			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	52.0	29.5	13.5	15.7	61.2	22.1	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	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	10.8	23.4	14.9	3.7
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	35.3
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	7.2
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	21	4	0	14	17	22	0	20	9
Future Vol, veh/h	9	13	14	21	4	0	14	17	22	0	20	9
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	23	4	0	16	19	24	0	29	13
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	7.3	7.5	7.2	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	25%	84%	0%
Vol Thru, %	32%	36%	16%	69%
Vol Right, %	42%	39%	0%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	36	25	29
LT Vol	14	9	21	0
Through Vol	17	13	4	20
RT Vol	22	14	0	9
Lane Flow Rate	59	42	27	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.063	0.047	0.033	0.045
Departure Headway (Hd)	3.854	4.083	4.31	3.878
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	924	873	827	918
Service Time	1.898	2.125	2.354	1.924
HCM Lane V/C Ratio	0.064	0.048	0.033	0.046
HCM Control Delay	7.2	7.3	7.5	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	24	206	42	39	238	301	39	47	669
Future Volume (vph)	1	24	206	42	39	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		39.8	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		11.8			27.0		7.6			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)	27	224	130	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	39.8	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)	17	0	29	36	4	0	10	142
Queue Length 95th (ft)	43	66	57	173	5	0	22	180
Internal Link Dist (ft)	493		184		692			330
Turn Bay Length (ft)		100		425		175	165	
Base Capacity (vph)	370	495	640	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	24	206	42	39	39	238	301	39	47	669	7
Future Volume (veh/h)	1	24	206	42	39	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	26	224	46	42	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	34	393	336	225	203	219	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	15	1849	1581	825	954	1031	1781	3554	1578	1781	3600	40
Grp Volume(v), veh/h	27	0	224	68	0	62	259	327	42	51	359	376
Grp Sat Flow(s),veh/h/ln	1864	0	1581	1297	0	1513	1781	1777	1578	1781	1777	1863
Q Serve(g_s), s	0.0	0.0	15.6	3.9	0.0	4.0	3.9	0.0	0.0	0.6	6.6	6.6
Cycle Q Clear(g_c), s	1.4	0.0	15.6	5.2	0.0	4.0	3.9	0.0	0.0	0.6	6.6	6.6
Prop In Lane	0.04		1.00	0.67		0.68	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	427	0	336	326	0	322	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	322	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	0.96	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	1.3	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	0.7	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	40.7	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		251			130			628			786	
Approach Delay, s/veh		51.8			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		7.2				
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

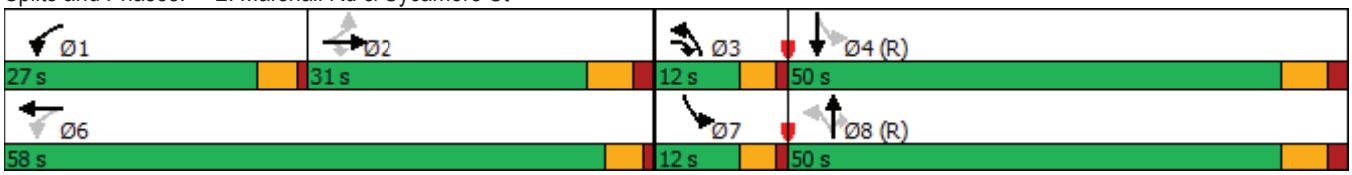
User approved pedestrian interval to be less than phase max green.

* 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	246	354	34	226	554	225	28	926
Future Volume (vph)	4	18	246	354	34	226	554	225	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)		10.3	30.2	34.0	34.0	76.1	68.7	68.7	57.4	49.6
Actuated g/C Ratio		0.09	0.25	0.28	0.28	0.63	0.57	0.57	0.48	0.41
v/c Ratio		0.16	0.57	0.92	0.12	0.59	0.30	0.25	0.07	0.69
Control Delay		49.5	28.3	65.3	18.3	29.4	12.4	0.9	10.9	25.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		49.5	28.3	65.3	18.3	29.4	12.4	0.9	10.9	25.4
LOS		D	C	E	B	C	B	A	B	C
Approach Delay		30.1			59.0		13.6			25.0
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: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 77.4%	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	267	385	59	246	602	245	30	1014
v/c Ratio	0.16	0.57	0.92	0.12	0.59	0.30	0.25	0.07	0.69
Control Delay	49.5	28.3	65.3	18.3	29.4	12.4	0.9	10.9	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	28.3	65.3	18.3	29.4	12.4	0.9	10.9	25.4
Queue Length 50th (ft)	18	109	268	21	84	91	0	7	348
Queue Length 95th (ft)	39	186	298	41	m#327	205	m16	m21	458
Internal Link Dist (ft)	356			327		1089			692
Turn Bay Length (ft)		160	100		400			120	
Base Capacity (vph)	361	467	421	791	419	2025	985	446	1461
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	0.57	0.91	0.07	0.59	0.30	0.25	0.07	0.69

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	246	354	34	20	226	554	225	28	926	6
Future Volume (veh/h)	4	18	246	354	34	20	226	554	225	28	926	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	4	20	267	385	37	22	246	602	245	30	1007	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	67	293	383	577	444	264	318	1534	679	312	1430	10
Arrive On Green	0.18	0.18	0.18	0.19	0.40	0.40	0.06	0.43	0.43	0.05	0.79	0.79
Sat Flow, veh/h	176	1624	1572	1781	1097	653	1781	3554	1574	1781	3617	25
Grp Volume(v), veh/h	24	0	267	385	0	59	246	602	245	30	495	519
Grp Sat Flow(s),veh/h/ln	1800	0	1572	1781	0	1750	1781	1777	1574	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	18.6	20.4	0.0	2.5	7.5	13.9	12.6	1.2	15.8	15.8
Cycle Q Clear(g_c), s	1.3	0.0	18.6	20.4	0.0	2.5	7.5	13.9	12.6	1.2	15.8	15.8
Prop In Lane	0.17		1.00	1.00		0.37	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	360	0	383	577	0	708	318	1534	679	312	703	738
V/C Ratio(X)	0.07	0.00	0.70	0.67	0.00	0.08	0.77	0.39	0.36	0.10	0.70	0.70
Avail Cap(c_a), veh/h	409	0	427	578	0	780	318	1534	679	376	703	738
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	40.8	0.0	41.4	29.1	0.0	22.0	26.7	23.3	23.0	20.2	9.2	9.2
Incr Delay (d2), s/veh	0.1	0.0	4.4	2.9	0.0	0.0	9.5	0.6	1.2	0.1	5.5	5.2
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	7.6	9.1	0.0	1.0	3.6	5.9	4.8	0.5	4.3	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	45.8	32.1	0.0	22.1	36.1	24.0	24.2	20.4	14.7	14.5
LnGrp LOS	D	A	D	C	A	C	D	C	C	C	B	B
Approach Vol, veh/h		291			444			1093			1044	
Approach Delay, s/veh		45.4			30.7			26.8			14.8	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	26.9	27.6	12.0	53.5	54.5	7.7	57.8
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	22.4	20.6	9.5	17.8	4.5	3.2	15.9
Green Ext Time (p_c), s	0.0	0.4	0.0	7.1	0.3	0.0	5.2

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

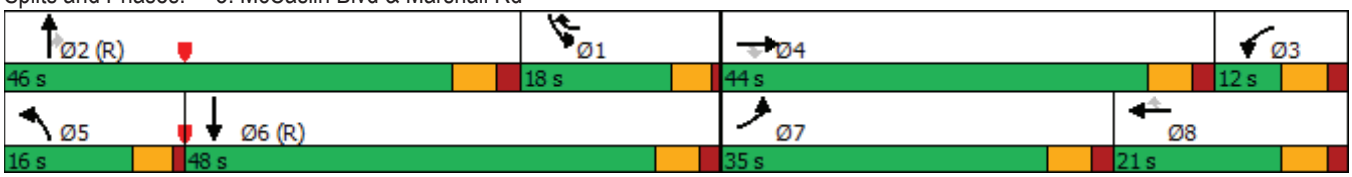
User approved pedestrian interval to be less than phase max green.

* 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)	985	56	517	104	57	181	226	1377	67	270	1385	710
Future Volume (vph)	985	56	517	104	57	181	226	1377	67	270	1385	710
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	32.8	32.8	8.0	15.0	26.7	11.3	43.2	43.2	13.5	45.5	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	0.86	0.12	0.94	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.49
Control Delay	46.3	26.9	39.8	62.6	50.9	10.7	69.3	40.2	0.3	65.2	37.4	1.1
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	46.3	26.9	39.8	62.6	50.9	10.7	69.3	40.2	0.3	65.2	37.4	1.1
LOS	D	C	D	E	D	B	E	D	A	E	D	A
Approach Delay		43.4			33.2			42.5			29.7	
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)	1071	61	562	113	62	197	246	1497	73	293	1505	772
v/c Ratio	0.86	0.12	0.94	0.50	0.27	0.44	0.77	0.82	0.11	0.76	0.78	0.49
Control Delay	46.3	26.9	39.8	62.6	50.9	10.7	69.3	40.2	0.3	65.2	37.4	1.1
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	46.3	26.9	39.8	62.6	50.9	10.7	69.3	40.2	0.3	65.2	37.4	1.1
Queue Length 50th (ft)	302	37	276	44	44	24	97	399	0	115	391	0
Queue Length 95th (ft)	m#352	m45	m#430	#85	88	58	#152	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)	1246	589	658	227	232	445	328	1831	685	386	1926	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	0.86	0.10	0.85	0.50	0.27	0.44	0.75	0.82	0.11	0.76	0.78	0.49

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)	985	56	517	104	57	181	226	1377	67	270	1385	710
Future Volume (veh/h)	985	56	517	104	57	181	226	1377	67	270	1385	710
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	1071	61	0	113	62	197	246	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	1170	290		702	234	368	302	1702		376	1875	
Arrive On Green	0.23	0.15	0.00	0.20	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	1071	61	0	113	62	197	246	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	24.9	3.4	0.0	3.2	3.6	4.9	8.4	33.2	0.0	9.9	31.7	0.0
Cycle Q Clear(g_c), s	24.9	3.4	0.0	3.2	3.6	4.9	8.4	33.2	0.0	9.9	31.7	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	1170	290		702	234	368	302	1702		376	1875	
V/C Ratio(X)	0.92	0.21		0.16	0.27	0.54	0.81	0.88		0.78	0.80	
Avail Cap(c_a), veh/h	1214	592		702	234	368	331	1702		389	1875	
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)	0.61	0.61	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	44.3	0.0	39.4	47.5	15.6	53.8	37.7	0.0	52.1	34.1	0.0
Incr Delay (d2), s/veh	7.0	0.2	0.0	0.1	0.6	1.5	13.4	6.9	0.0	9.5	3.8	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	11.0	1.6	0.0	1.4	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	51.8	44.5	0.0	39.5	48.1	17.1	67.2	44.6	0.0	61.6	37.8	0.0
LnGrp LOS	D	D		D	D	B	E	D		E	D	
Approach Vol, veh/h		1132	A		372			1743	A		1798	A
Approach Delay, s/veh		51.4			29.1			47.8			41.7	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	46.0	30.4	24.6	15.0	50.1	34.0	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	13.5	* 40	6.0	38.0	11.5	42.0	29.0	15.0
Max Q Clear Time (g_c+I1), s	11.9	35.2	5.2	5.4	10.4	33.7	26.9	6.9
Green Ext Time (p_c), s	0.2	3.7	0.0	0.3	0.1	5.9	1.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	45.1
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	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	7	31	12	10	0	36	30	17	2	24	37
Future Vol, veh/h	25	7	31	12	10	0	36	30	17	2	24	37
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	34	8	42	13	11	0	54	45	18	2	32	49
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	7.6	7.7	7.8	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	40%	55%	3%
Vol Thru, %	36%	11%	45%	38%
Vol Right, %	20%	49%	0%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	63	22	63
LT Vol	36	25	12	2
Through Vol	30	7	10	24
RT Vol	17	31	0	37
Lane Flow Rate	117	84	24	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.134	0.095	0.03	0.09
Departure Headway (Hd)	4.116	4.046	4.564	3.865
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	861	870	789	913
Service Time	2.187	2.142	2.564	1.949
HCM Lane V/C Ratio	0.136	0.097	0.03	0.092
HCM Control Delay	7.8	7.6	7.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.3	0.1	0.3