

# TRAFFIC IMPACT STUDY

For

**Mississippi & Jamaica Wash 'N Go  
Aurora, Colorado**

February 2023

Prepared for:

Wash 'N Go of Colorado  
2200 South Wilcox Street  
P.O. Box 249  
Castle Rock, Colorado 80104

Prepared by:



**SM ROCHA, LLC**  
TRAFFIC AND TRANSPORTATION CONSULTANTS

8700 Turnpike Drive, Suite 240  
Westminster, Colorado 80031  
(303) 458-9798

6 South Tejon Street, Suite 515  
Colorado Springs, Colorado 80903  
(719) 203-6639

Project Engineer:  
Megan Bock, EIT

Engineer in Responsible Charge:  
Fred Lantz, PE



22-111787

## Table of Contents

<b>I. Introduction .....</b>	<b>1</b>
Project Overview .....	1
Study Area Boundaries .....	1
Site Description .....	1
Existing and Committed Surface Transportation Network .....	4
<b>II. Existing Traffic Conditions .....</b>	<b>5</b>
Peak Hour Intersection Levels of Service – Existing Traffic .....	7
Existing Traffic Analysis Results .....	7
<b>III. Future Traffic Conditions Without Proposed Development.....</b>	<b>8</b>
Peak Hour Intersection Levels of Service – Background Traffic .....	11
Background Traffic Analysis Results – Year 2025 .....	11
Background Traffic Analysis Results – Year 2040 .....	12
<b>IV. Proposed Project Traffic .....</b>	<b>13</b>
Trip Generation .....	13
Adjustments to Trip Generation Rates .....	14
Trip Distribution .....	14
Trip Assignment .....	14
<b>V. Future Traffic Conditions With Proposed Developments .....</b>	<b>16</b>
<b>VI. Project Impacts .....</b>	<b>19</b>
Peak Hour Intersection Levels of Service – Total Traffic .....	19
Total Traffic Analysis Results Upon Development Build-Out .....	20
Pedestrian Circulation & Safety Analysis .....	21
<b>VII. Conclusion .....</b>	<b>22</b>

## List of Figures

Figure 1 – Location.....	2
Figure 2 – Conceptual Site Plan.....	3
Figure 3 – Existing Traffic Volumes & Intersection Geometry .....	6
Figure 4 – Background Traffic Volumes & Intersection Geometry – Year 2025.....	9
Figure 5 – Background Traffic Volumes & Intersection Geometry – Year 2040.....	10
Figure 6 – Distribution and Site-Generated Assignment.....	15
Figure 7 – Total Traffic Volumes & Intersection Geometry – Year 2025.....	17
Figure 8 – Total Traffic Volumes & Intersection Geometry – Year 2040.....	18

## List of Tables

Table 1 – Intersection Capacity Analysis Summary – Existing Traffic .....	7
Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2025 .....	11
Table 3 – Intersection Capacity Analysis Summary – Background Traffic – Year 2040 .....	11
Table 4 – Trip Generation Rates .....	13
Table 5 – Trip Generation Summary .....	13
Table 6 – Intersection Capacity Analysis Summary – Total Traffic – Year 2025 .....	19
Table 7 – Intersection Capacity Analysis Summary – Total Traffic – Year 2040 .....	20

## Appendices

APPENDIX A	TRAFFIC COUNT DATA
APPENDIX B	LEVEL OF SERVICE DEFINITIONS
APPENDIX C	CAPACITY WORKSHEETS

## **I. Introduction**

### **Project Overview**

This traffic impact study is provided as a planning document and addresses the capacity, geometric, and control requirements associated with the development entitled Mississippi & Jamaica Wash 'N Go.

This proposed commercial development consists of a Wash 'N Go Express Car Wash. The development is located at the northwest corner of the intersection of E Mississippi Avenue with S Jamaica Street in Aurora, Colorado.

### **Study Area Boundaries**

The study area to be examined in this analysis encompasses the E Mississippi Avenue intersections with S Ironton Street and S Jamaica Street as well as the proposed site access.

Figure 1 illustrates location of the site and study intersections.

### **Site Description**

Land for the development is currently vacant and surrounded by a mix of commercial, residential, and religious land uses.

The proposed development is understood to entail the new construction of a Wash 'N Go Express Car Wash supporting one automated wash stall and associated parking with vacuum bays.

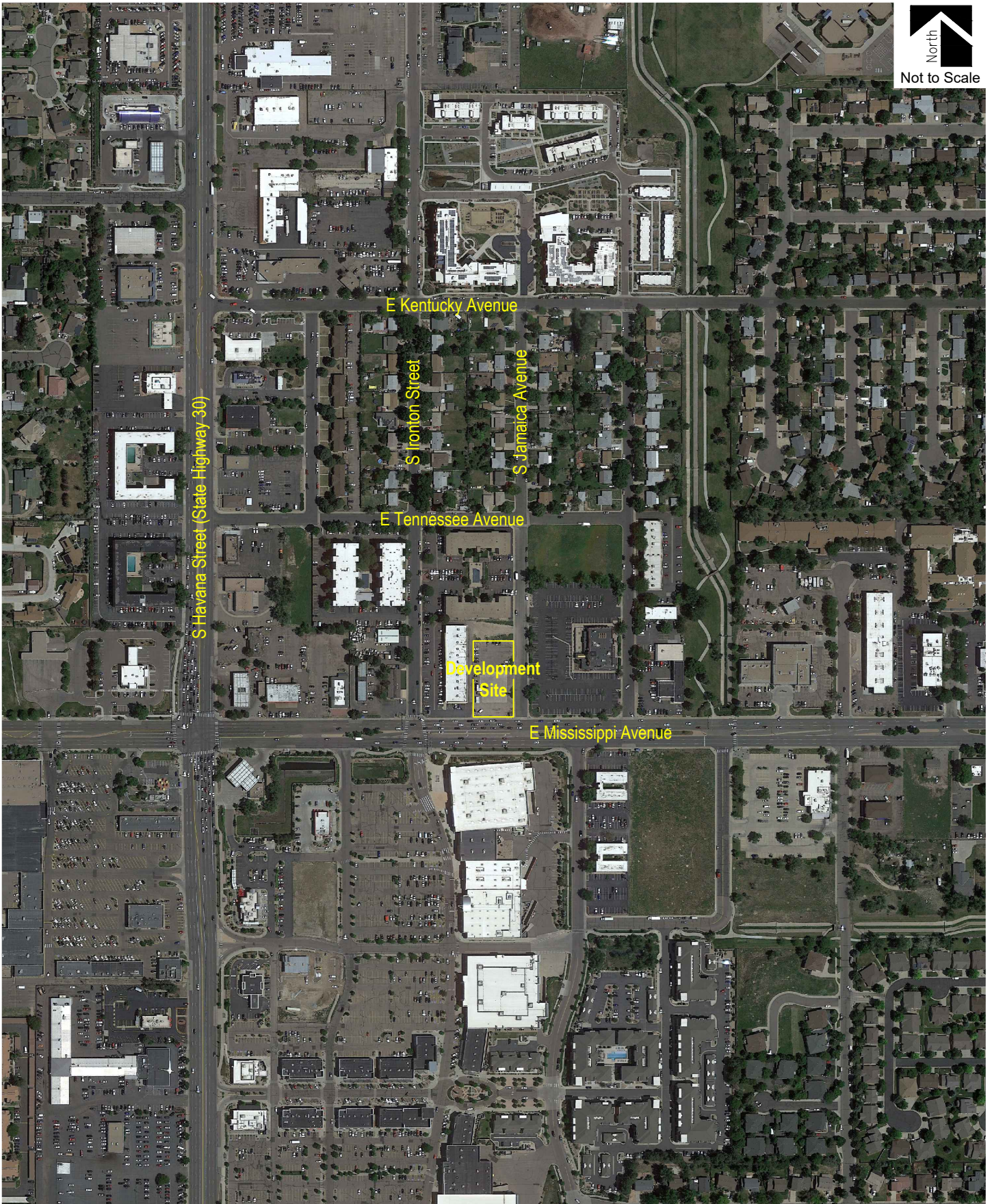
Proposed access to the development is provided via one full-movement access onto S Jamaica Street (referred to as Site Access).

For purposes of this study, it is anticipated that development construction would be completed by end of Year 2025.

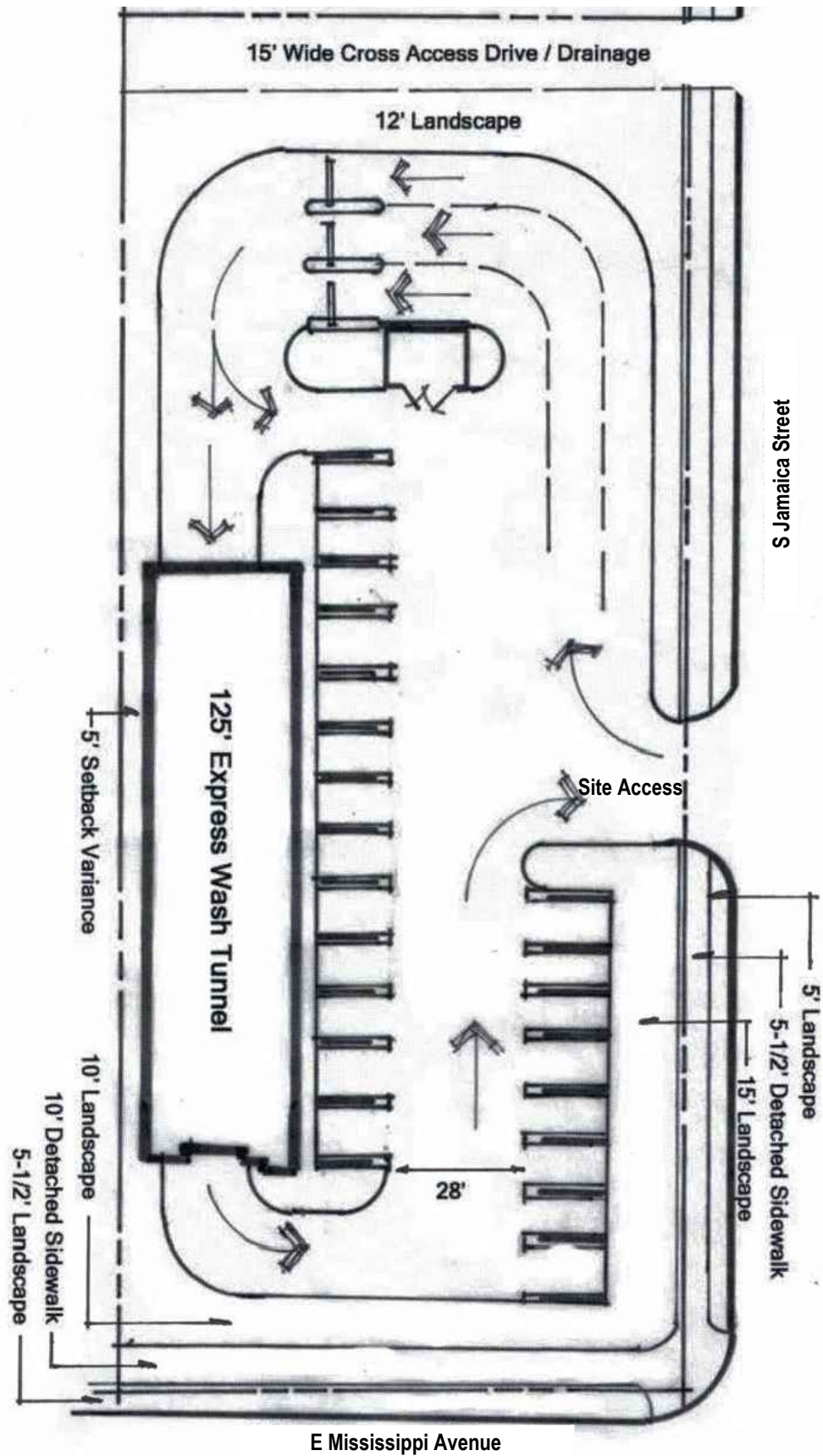
General site and access locations are shown on Figure 1.

A conceptual site plan is shown on Figure 2. This plan is provided for illustrative purposes only.









## Existing and Committed Surface Transportation Network

Within the study area, E Mississippi Avenue is the primary roadway that will accommodate traffic to and from the proposed development. The secondary roadways include S Jamaica Street and S Ironton Street. A brief description of each roadway, based on the City's comprehensive plan (Aurora Places)<sup>1</sup>, and Roadway Design and Construction Specifications<sup>2</sup>, is provided below:

E Mississippi Avenue is an east-west major arterial roadway having six through lanes (three lanes in each direction) with a combination of shared and exclusive turn lanes at the intersections within the study area. E Mississippi Avenue provides a posted speed limit of 40 MPH.

S Jamaica Street is a north-south roadway having two through lanes (one lane in each direction) with shared turn lanes at the intersection within the study area. S Jamaica Street is unclassified in the City's comprehensive plan. However, per Section 4.08 of the City's Roadway Design and Construction Specifications and the roadway's estimated ROW width, S Jamaica Street is assumed to be classified as a local roadway with a posted speed limit of 25 MPH.

S Ironton Street is a north-south roadway having two through lanes (one lane in each direction) with a combination of shared and exclusive turn lanes at the intersection within the study area. S Ironton Street is unclassified in the City's comprehensive plan. However, per Section 4.08 of the City's Roadway Design and Construction Specifications and the roadway's estimated ROW width, S Ironton Street is assumed to be classified as a local roadway with a posted speed limit of 25 MPH.

The study intersection of E Mississippi Avenue and S Ironton Street is signalized. All other study intersections operate under a stop-controlled condition. A stop-controlled intersection is defined as a roadway intersection where vehicle rights-of-way are controlled by one or more "STOP" signs.

No regional or specific improvements for the above-described roadways are known to be planned or committed at this time. The study area roadways appear to be built to their ultimate cross-sections.

---

<sup>1</sup> Aurora Places: planning tomorrow's city, City of Aurora, October 2018.

<sup>2</sup> Roadway Design & Construction Specifications, City of Aurora, October 2016.

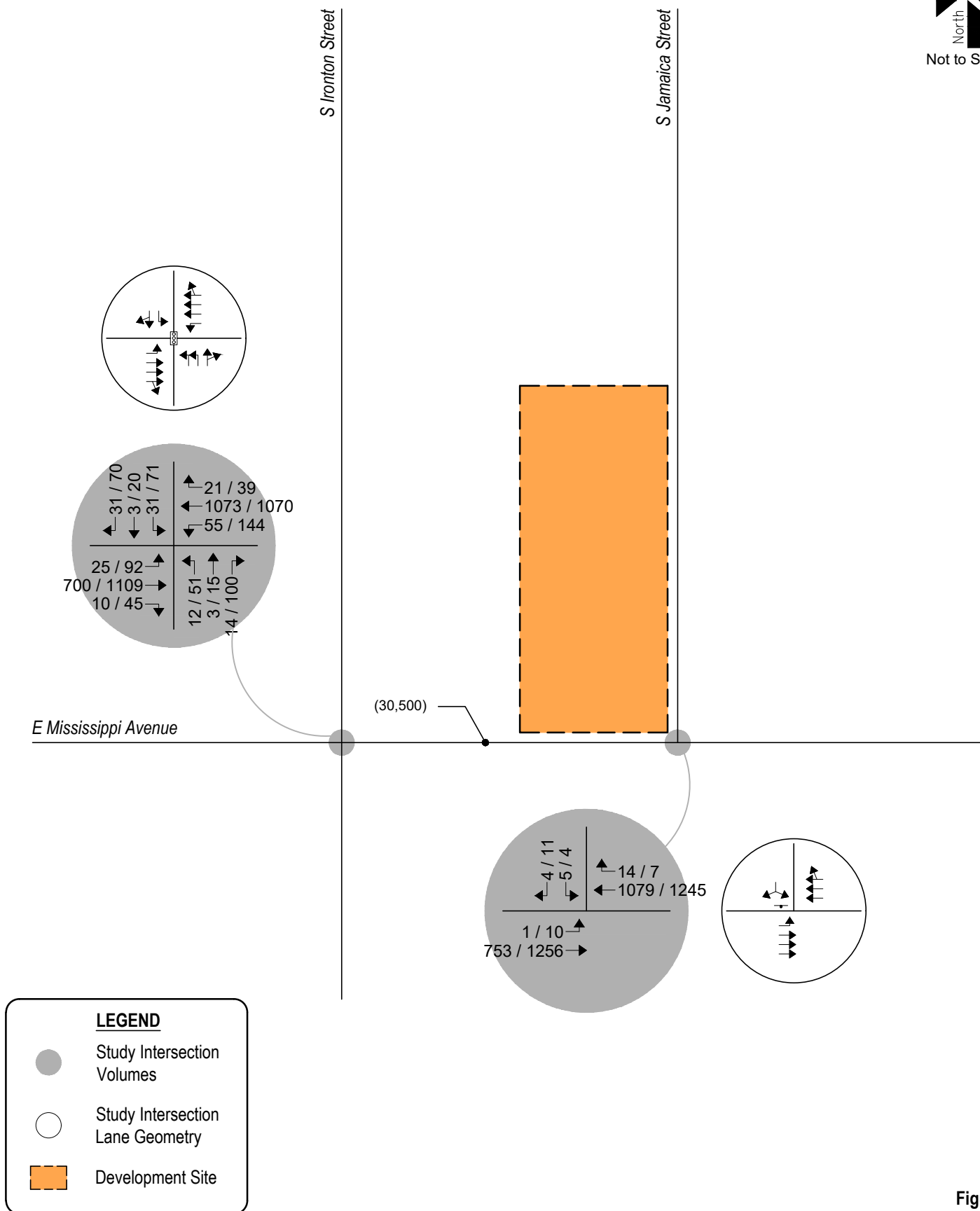
## **II. Existing Traffic Conditions**

Morning (AM) and afternoon (PM) peak hour traffic counts were collected at the intersections of E Mississippi Avenue with S Ironton Street and S Jamaica Street. Average daily traffic (ADT) volumes were collected over a 24-hour period on E Mississippi Avenue. Counts were collected on Thursday, February 2, 2023, with AM peak hour counts being collected during the period of 7:00 a.m. to 9:00 a.m. and PM peak hour counts being collected during the period of 4:00 p.m. to 6:00 p.m.

Existing volumes and intersection geometry are shown on Figure 3. Traffic count data is included for reference in Appendix A.

Existing signal timing parameters for E Mississippi Avenue and S Ironton Street were assumed based on the existing signal head configuration and allowable movements. Timings were used throughout this study to the best extent possible in order to remain consistent with typical City signal coordination plans.





**Figure 3**  
**EXISTING TRAFFIC**  
Volumes & Intersection Geometry  
AM / PM Peak Hour  
(ADT) : Average Daily Traffic

### Peak Hour Intersection Levels of Service – Existing Traffic

The Signalized and Unsignalized Intersection Analysis techniques, as published in the Highway Capacity Manual (HCM), 6<sup>th</sup> Edition, by the Transportation Research Board and as incorporated into the SYNCHRO computer program, were used to analyze the study intersections for existing and future traffic conditions. These nationally accepted techniques allow for the determination of intersection level of service (LOS) based on the congestion and delay of each traffic movement.

Level of service is a method of measurement used by transportation professionals to quantify a driver's perception of travel conditions that include travel time, number of stops, and total amount of stopped delay experienced on a roadway network. The HCM categorizes level of service into a range from "A" which indicates little, if any, vehicle delay, to "F" which indicates a level of operation considered unacceptable to most drivers. These levels of service grades with brief descriptions of the operating condition, for unsignalized and signalized intersections, are included for reference in Appendix B and have been used throughout this study.

The level of service analyses results for existing conditions are summarized in Table 1.

Intersection capacity worksheets developed for this study are provided in Appendix C.

**Table 1 – Intersection Capacity Analysis Summary – Existing Traffic**

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
E Mississippi Avenue / S Ironton Street (Signalized)	B (16.5)	B (19.9)
E Mississippi Avenue / S Jamaica Street (Stop-Controlled)		
Eastbound Left	C	C
Southbound Left and Right	C	C

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled Intersection: Level of Service

### Existing Traffic Analysis Results

Under existing conditions, operational analysis shows that the signalized intersection of E Mississippi Avenue with S Ironton Street has overall operations at LOS B during the morning and afternoon peak traffic hours.

The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street has turning movement operations at LOS C during both afternoon peak traffic hours.

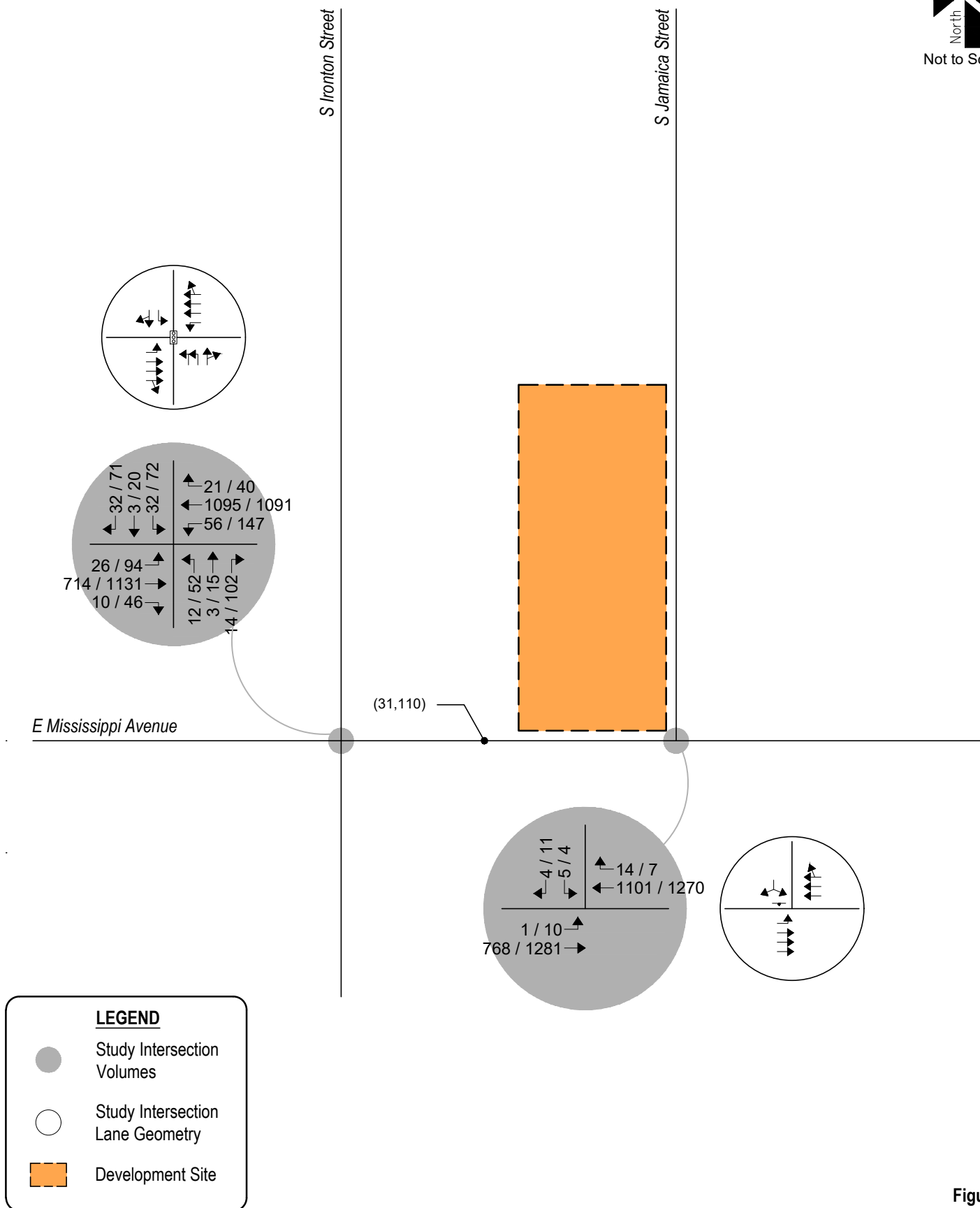
### **III. Future Traffic Conditions Without Proposed Development**

Background traffic is the traffic projected to be on area roadways without consideration of the proposed development. Background traffic includes traffic generated by development of vacant parcels in the area.

To account for projected increases in background traffic for Years 2025 and 2040, a compounded annual growth rate was determined using historical traffic data provided by CDOT's Online Transportation Information System (OTIS) along the adjacent segment of S Havana Street (SH 30), which anticipates a 20-year growth rate of less than one percent. Therefore, in order to provide for a conservative analysis, a growth rate of one percent was applied to existing traffic volumes. This annual growth rate provides for a conservative analysis and is assumed to account for regional growth projections and the level of in-fill development expected within the area.

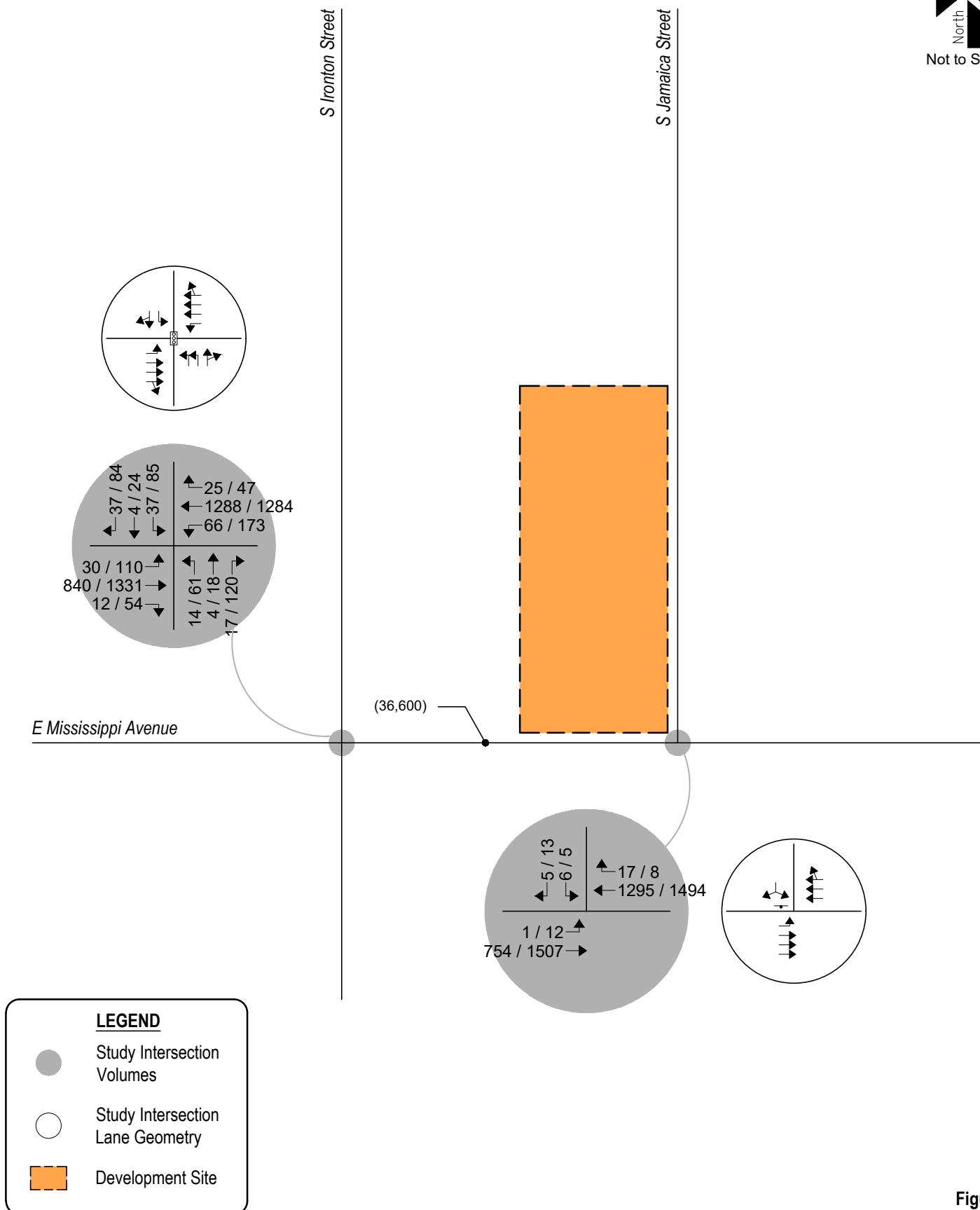
Pursuant to the non-committed area roadway improvements discussed in Section I, Year 2025 and Year 2040 background traffic conditions assume no roadway improvements to accommodate regional transportation demands. This assumption provides for a conservative analysis. Year 2040 assumes existing signal timing parameters for E Mississippi Avenue and S Ironton Street with optimized intersection splits in effort to better long-term intersection performance.

Projected background traffic volumes and intersection geometry for Years 2025 and 2040 are shown on Figure 4 and Figure 5, respectively.



**Figure 4**  
**BACKGROUND TRAFFIC - YEAR 2025**  
Volumes & Intersection Geometry  
AM / PM Peak Hour  
(ADT) : Average Daily Traffic





**Figure 5**  
**BACKGROUND TRAFFIC - YEAR 2040**  
Volumes & Intersection Geometry  
AM / PM Peak Hour  
(ADT) : Average Daily Traffic

### Peak Hour Intersection Levels of Service – Background Traffic

As with existing traffic conditions, the operations of study intersections were analyzed under background conditions, without the proposed development, using the SYNCHRO computer program.

Background traffic level of service analysis results for Year 2025 are listed in Table 2. Year 2040 operational results are summarized in Table 3.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

**Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2025**

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
E Mississippi Avenue / S Ironton Street (Signalized)	B (16.7)	C (20.3)
E Mississippi Avenue / S Jamaica Street (Stop-Controlled)		
Eastbound Left	C	C
Southbound Left and Right	C	C

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled Intersection: Level of Service

### Background Traffic Analysis Results – Year 2025

Year 2025 background traffic analysis indicates that the signalized intersection of E Mississippi Avenue with S Ironton Street has overall operations at LOS B during the morning peak traffic hour and LOS C during the afternoon peak traffic hour.

The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street projects turning movement operations at LOS C during both peak traffic hours.

**Table 3 – Intersection Capacity Analysis Summary – Background Traffic – Year 2040**

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
E Mississippi Avenue / S Ironton Street (Signalized)	B (16.3)	C (21.1)
E Mississippi Avenue / S Jamaica Street (Stop-Controlled)		
Eastbound Left	C	D
Southbound Left and Right	D	E

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled Intersection: Level of Service

**Background Traffic Analysis Results – Year 2040**

By Year 2040 and without the proposed development, the study intersection of E Mississippi Avenue with S Ironton Street expects LOS B operations during the AM peak traffic hour and LOS C operations during the PM peak traffic hour.

The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street projects turning movement operations at LOS D or better during both peak traffic hours. Exceptions would include the southbound turning movements which operate at LOS E during the PM peak traffic hour. The LOS E operation is attributed to the through traffic volume along E Mississippi Avenue and the stop-controlled nature of the intersection.

It is to be noted that it is not uncommon for unsignalized movements to or from an arterial roadway, in urban areas, to operate with noticeable delays during peak traffic hours. It is, however, likely that turn movements will operate better than the results obtained with this HCM Two-Way Stop-Control (TWSC) level of service analysis would indicate, as the HCM analysis may not accurately account for the effect of vehicle platooning and gaps caused by upstream signals. The upstream signal control along E Mississippi Avenue will tend to create additional gaps in the traffic stream for turning movements at S Jamaica Street and will most likely provide mitigation to the LOS E operation projected during the afternoon peak traffic hours.

## IV. Proposed Project Traffic

### Trip Generation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in their report entitled Trip Generation Manual, 11<sup>th</sup> Edition, were applied to the proposed land use in order to estimate average daily traffic (ADT), AM Peak Hour, and PM Peak Hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from a point of origin to a point of destination.

The ITE land use code 948 (Automated Car Wash) was used for estimating trip generation because of its conservative rates and best fit to the proposed land use description.

Trip generation rates used in this study are presented in Table 4.

**Table 4 – Trip Generation Rates**

ITE  CODE                    LAND USE                    UNIT			TRIP GENERATION RATES						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
948	Automated Car Wash	WS	775.00	*	*	*	38.75	38.75	77.50

Key: WS = Wash Stalls.

\* = ITE does not report significant AM peak hour generation due to the nature of the business (ie, operating hours typically open after AM peak).

Note: All data and calculations above are subject to being rounded to nearest value.

Table 5 illustrates projected ADT, AM Peak Hour, and PM Peak Hour traffic volumes likely generated by the proposed development upon build-out.

**Table 5 – Trip Generation Summary**

ITE  CODELAND USESIZE			TOTAL TRIPS GENERATED						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
948	Automated Car Wash	1 WS	775	*	*	*	39	39	78
Total:			775	*	*	*	39	39	78

Key: WS = Wash Stalls.

\* = ITE does not report significant AM peak hour generation due to the nature of the business (ie, operating hours typically open after AM peak).

Note: All data and calculations above are subject to being rounded to nearest value.

Upon build-out, Table 5 illustrates that the proposed development has the potential to generate approximately 775 daily vehicle trips with 78 of those occurring during the afternoon peak hour.



### **Adjustments to Trip Generation Rates**

A development of this type is not likely to attract trips from within area land uses nor pass-by or diverted link trips from the adjacent roadway system, therefore no trip reduction was taken in this analysis.

### **Trip Distribution**

The overall directional distribution of site-generated traffic was determined based on the location of development site within the City, proposed and existing area land uses, allowed turning movements, and available roadway network, and in reference to historical traffic count data provided by CDOT's Traffic Count Database System (TCDS)<sup>3</sup>.

Overall trip distribution patterns for the development are shown on Figure 6.

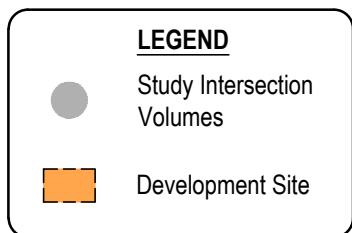
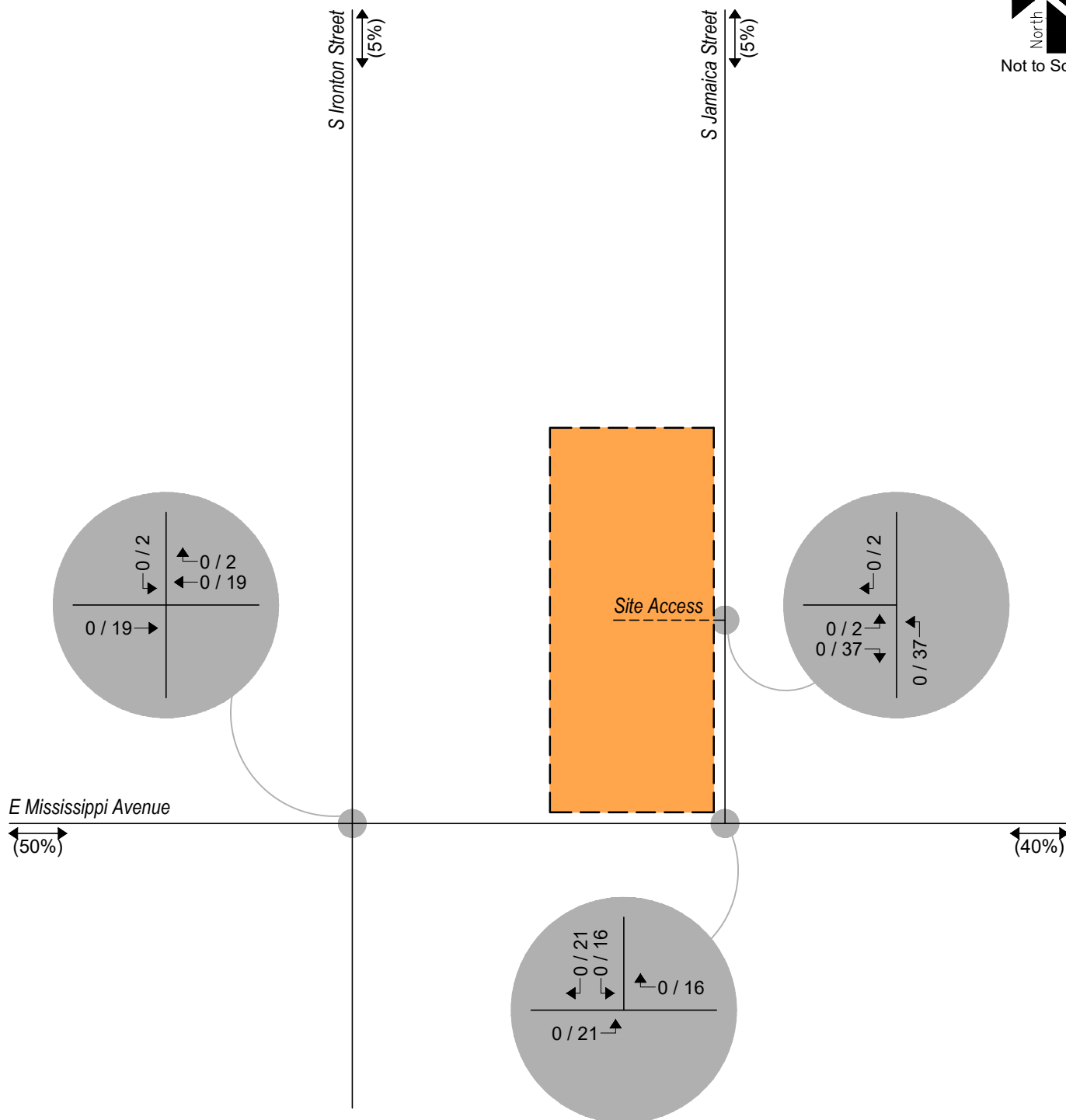
### **Trip Assignment**

Trip assignment is how generated and distributed vehicle trips are expected to be loaded onto the available roadway network.

Applying trip distribution patterns to site-generated traffic provides the overall site-generated trip assignments shown on Figure 6.

---

<sup>3</sup> Transportation Data Management System, MS2, 2022.



**Figure 6**  
**SITE DEVELOPMENT DISTRIBUTION**  
(%) : Overall  
**SITE-GENERATED**  
AM / PM Peak Hour



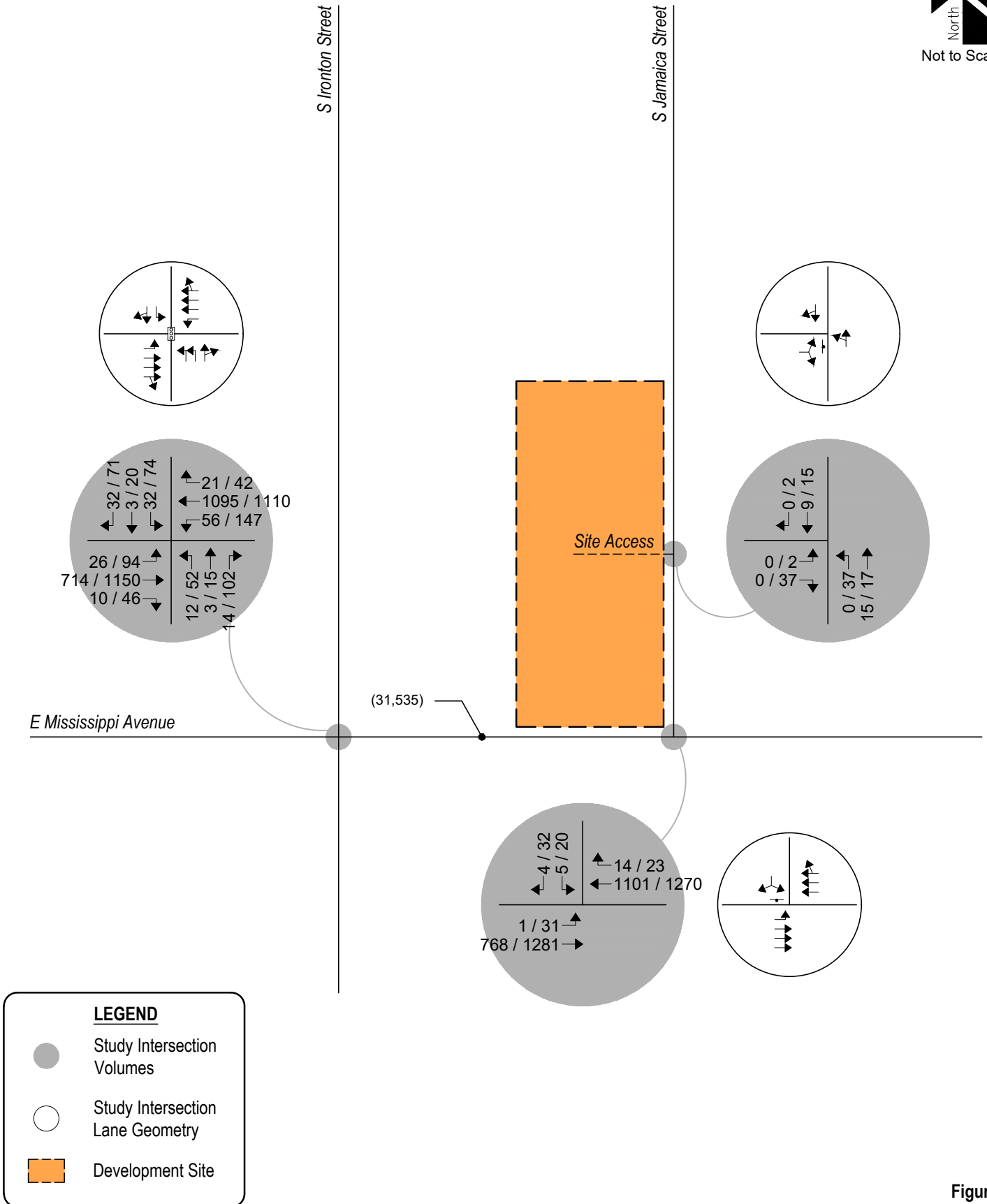
## **V. Future Traffic Conditions With Proposed Developments**

Total traffic is the traffic projected to be on area roadways with consideration of the proposed development. Total traffic includes background traffic projections for Years 2025 and 2040 with consideration of site-generated traffic. For analysis purposes, it was assumed that development construction would be completed by end of Year 2025.

Pursuant to area roadway improvement discussions provided in Section III, Year 2025 and Year 2040 total traffic conditions assume no roadway improvements to accommodate regional transportation demands. Roadway improvements associated with site development are expected to be limited to site access and frontage as required by the governing agency.

Projected Year 2025 total traffic volumes and intersection geometry are shown in Figure 7.

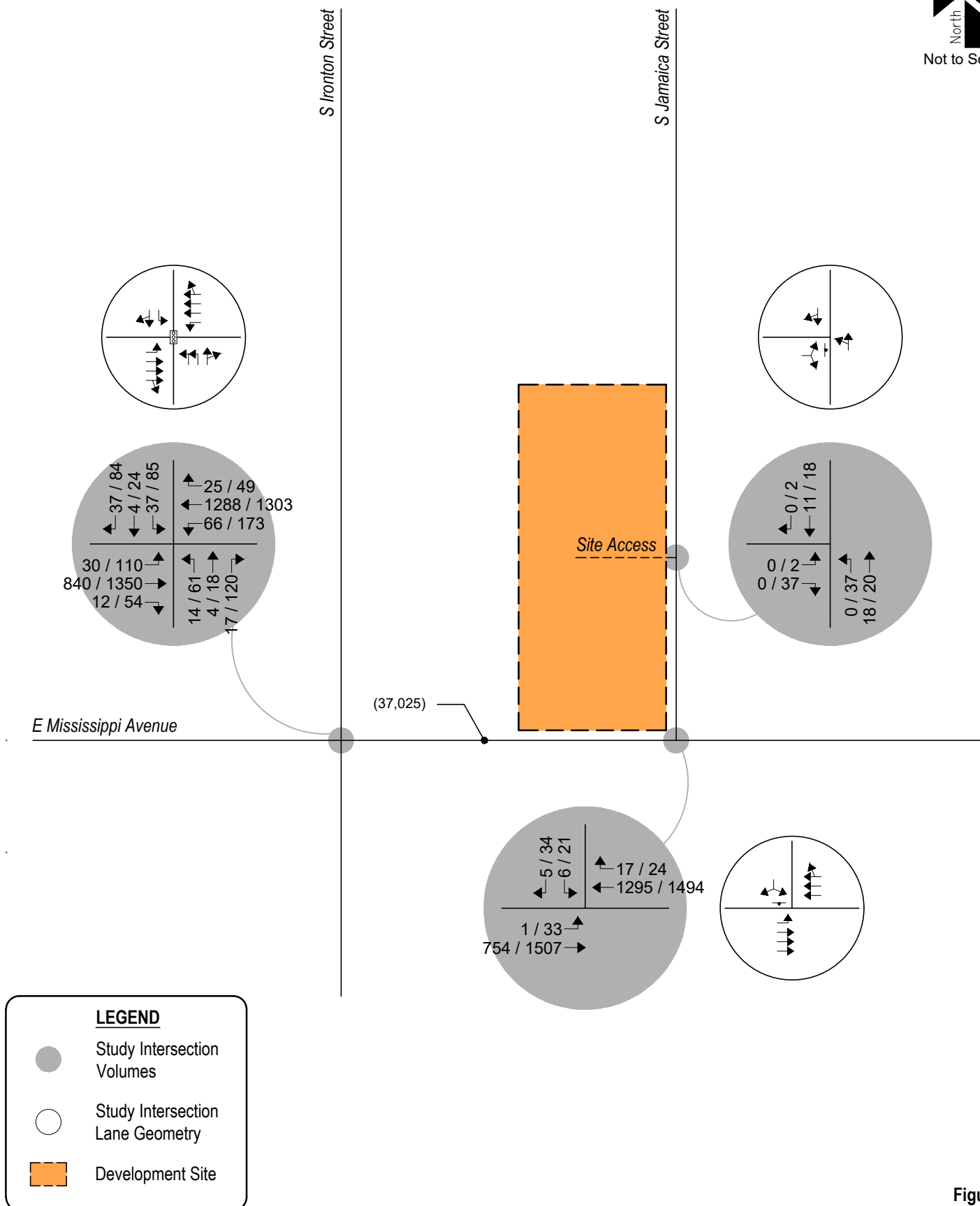
Figure 8 shows projected total traffic volumes and intersection geometry for Year 2040.



**Figure 7**  
**TOTAL TRAFFIC - YEAR 2025**  
Volumes & Intersection Geometry  
AM / PM Peak Hour  
(ADT) : Average Daily Traffic







**Figure 8**  
**TOTAL TRAFFIC - YEAR 2040**  
Volumes & Intersection Geometry  
AM / PM Peak Hour  
(ADT) : Average Daily Traffic

## VI. Project Impacts

The analyses and procedures described in this study were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

### Peak Hour Intersection Levels of Service – Total Traffic

As with background traffic, the operations of the study intersections were analyzed under projected total traffic conditions using the SYNCHRO computer program. Total traffic level of service analysis results for Years 2025 and 2040 are summarized in Table 6 and Table 7, respectively.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

**Table 6 – Intersection Capacity Analysis Summary – Total Traffic – Year 2025**

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
E Mississippi Avenue / S Ironton Street (Signalized)	B (16.7)	C (20.7)
E Mississippi Avenue / S Jamaica Street (Stop-Controlled)		
Eastbound Left	C	C
Southbound Left and Right	C	E
Site Access / S Jamaica Street (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled Intersection: Level of Service

**Table 7 – Intersection Capacity Analysis Summary – Total Traffic – Year 2040**

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
E Mississippi Avenue / S Ironton Street (Signalized)	B (16.3)	C (21.5)
E Mississippi Avenue / S Jamaica Street (Stop-Controlled) Eastbound Left Southbound Left and Right	C D	D F
Site Access / S Jamaica Street (Stop-Controlled) Eastbound Left and Right Northbound Left and Through	A A	A A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
 Stop-Controlled Intersection: Level of Service

### Total Traffic Analysis Results Upon Development Build-Out

Table 7 illustrates how, by Year 2040 and upon development build-out, the signalized intersection of E Mississippi Avenue with S Ironton Street shows an overall LOS B operation during the morning peak traffic hour and LOS C operation during the afternoon peak traffic hour. Compared to the background traffic analysis, the traffic generated by the proposed development is not expected to significantly change the operations of the study intersection.

The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street is projected to have turning movement operations at LOS D or better during the morning and afternoon peak traffic hours. Exceptions still include the southbound turning movements which operate at LOS F during the PM peak traffic hour. The LOS F operation is attributed to the through traffic volume along E Mississippi Avenue and the stop-controlled nature of the intersection.

The stop-controlled intersection of Site Access with S Jamaica Street projects turning movement operations at LOS A for both peak traffic hours.

It is to be noted that it is not uncommon for unsignalized movements to or from an arterial roadway, in urban areas, to operate with noticeable delays during peak traffic hours. It is, however, likely that turn movements will operate better than the results obtained with this HCM Two-Way Stop-Control (TWSC) level of service analysis would indicate, as the HCM analysis may not accurately account for the effect of vehicle platooning and gaps caused by upstream signals. The upstream signal control along E Mississippi Avenue will tend to create additional gaps in the traffic stream for turning movements at S Jamaica Street and will most likely provide mitigation to the LOS F operation projected during the afternoon peak traffic hours.

### **Pedestrian Circulation & Safety Analysis**

In accordance with Section 3.5.4 of the City's Traffic Impact Study Guidelines<sup>4</sup>, an assessment to pedestrian connectivity and safety was considered.

The proposed development would accommodate pedestrians and bicyclists by providing detached sidewalks along S Jamaica Street and E Mississippi Avenue. It is noted that due to the nature of the proposed business operations, the site is not expected to generate any additional pedestrian trips.

With the assumption that the development's site plan was designed per the City's Specifications, and pursuant to the Federal Highway Administration's (FHWA) Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations<sup>5</sup>, pedestrian safety is not expected to be of concern. Moreover, traffic calming and pedestrian crossing treatments are not applicable, and traffic calming is not recommended for the proposed conditions.

---

<sup>4</sup> Traffic Impact Study Guidelines, City of Aurora, Public Works Department, June 2015.

<sup>5</sup> Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, Federal Highway Administration, July 2018.



## **VII. Conclusion**

This traffic impact study addressed the capacity, geometric, and control requirements associated with the development entitled Mississippi & Jamaica Wash 'N Go. This proposed commercial development consists of a Wash 'N Go Express Car Wash. The development is located at the northwest corner of the intersection of E Mississippi Avenue with S Jamaica Street in Aurora, Colorado.

The study area examined in this analysis encompassed the E Mississippi Avenue intersections with S Ironton Street and S Jamaica Street as well as the proposed site access.

Analysis was conducted for critical AM Peak Hour and PM Peak Hour traffic operations for existing traffic conditions, Year 2025 and Year 2040 background traffic conditions, and Year 2025 and Year 2040 total traffic conditions.

Analysis of existing traffic conditions indicates that the signalized intersection of E Mississippi Avenue with S Ironton Street has overall operations at LOS B during the morning and afternoon peak traffic hours. The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street has turning movement operations at LOS C during both afternoon peak traffic hours.

Without the proposed development, Year 2025 background operational analysis shows that the signalized intersection of E Mississippi Avenue with S Ironton Street has overall operations at LOS B during the morning peak traffic hour and LOS C during the afternoon peak traffic hour. The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street projects turning movement operations at LOS C during both afternoon peak traffic hours.

By Year 2040 and without the proposed development, the study intersection of E Mississippi Avenue with S Ironton Street experiences LOS B operations during the AM peak traffic hour and LOS C operations during the PM peak traffic hour. The stop-controlled intersection of E Mississippi Avenue with S Jamaica Street projects turning movement operations at LOS D or better during both peak traffic hours. Exceptions would include the southbound turning movements which operate at LOS E during the PM peak traffic hour. The LOS E operation is attributed to the through traffic volume along E Mississippi Avenue and the stop-controlled nature of the intersection.

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create no negative impact to traffic operations for the existing and surrounding roadway system upon roadway and intersection control improvements assumed within this analysis. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to Year 2040 background traffic conditions. The proposed site access has long-term operations at LOS A during peak traffic periods and upon build-out.

## **APPENDIX A**

### **Traffic Count Data**



(303) 216-2439  
www.alltrafficdata.net

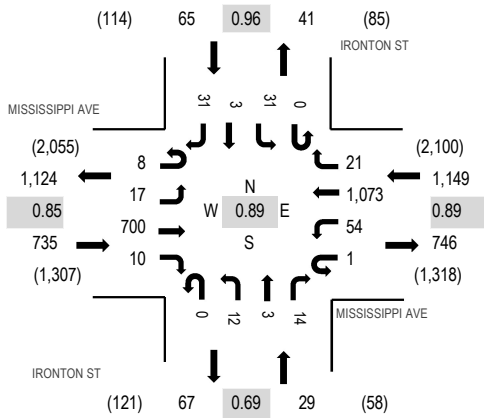
**Location:** 1 IRONTON ST & MISSISSIPPI AVE AM

**Date:** Thursday, February 2, 2023

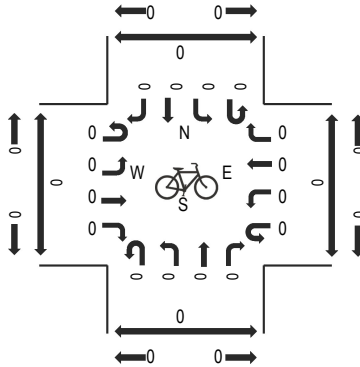
**Peak Hour:** 07:45 AM - 08:45 AM

**Peak 15-Minutes:** 07:45 AM - 08:00 AM

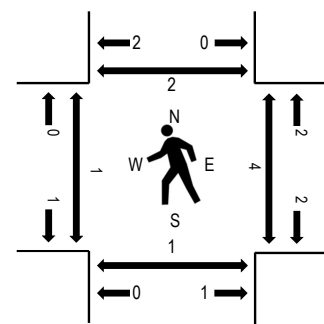
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	MISSISSIPPI AVE Eastbound				MISSISSIPPI AVE Westbound				IRONTON ST Northbound				IRONTON ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	1	5	111	0	0	8	167	6	0	3	1	2	0	2	0	7	313	1,724	0	0	1	0
7:15 AM	1	2	138	1	0	5	246	5	0	1	0	2	0	3	1	4	409	1,882	0	0	0	0
7:30 AM	1	5	150	1	0	9	255	9	0	2	2	0	0	3	1	10	448	1,972	0	1	0	2
7:45 AM	0	5	207	3	0	12	307	5	0	0	0	1	0	7	0	7	554	1,978	1	2	1	1
8:00 AM	2	4	169	2	0	10	257	5	0	3	0	2	0	8	1	8	471	1,855	0	2	0	0
8:15 AM	4	5	171	3	0	15	262	7	0	5	1	8	0	8	2	8	499		0	0	0	1
8:30 AM	2	3	153	2	1	17	247	4	0	4	2	3	0	8	0	8	454		0	0	0	0
8:45 AM	4	4	144	4	0	22	218	1	0	5	4	7	0	10	2	6	431		2	1	1	1
Count Total	15	33	1,243	16	1	98	1,959	42	0	23	10	25	0	49	7	58	3,579		3	6	3	5
Peak Hour	8	17	700	10	1	54	1,073	21	0	12	3	14	0	31	3	31	1,978		1	4	1	2



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

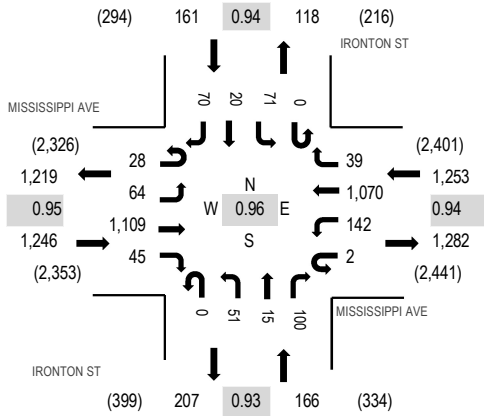
Location: 1 IRONTON ST &amp; MISSISSIPPI AVE PM

Date: Thursday, February 2, 2023

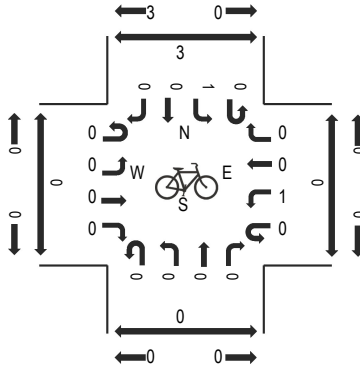
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

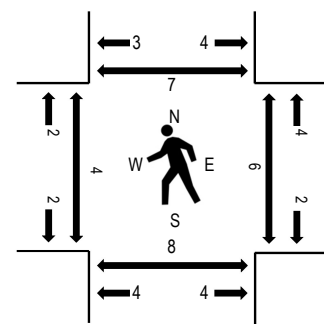
## Peak Hour - Motorized Vehicles



## Peak Hour - Bicycles



## Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

## Traffic Counts - Motorized Vehicles

Interval Start Time	MISSISSIPPI AVE Eastbound				MISSISSIPPI AVE Westbound				IRONTON ST Northbound				IRONTON ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	4	12	229	13	0	31	262	9	0	13	2	25	0	16	10	16	642	2,760	2	9	3	5
4:15 PM	7	16	271	2	0	49	252	8	0	14	7	25	0	10	5	11	677	2,821	3	5	5	4
4:30 PM	7	20	295	7	0	36	248	11	0	14	4	26	0	15	8	15	706	2,826	0	2	0	0
4:45 PM	8	23	274	11	0	29	300	8	0	14	5	20	0	15	2	26	735	2,764	1	2	2	3
5:00 PM	3	12	262	13	2	42	274	9	0	16	3	24	0	20	7	16	703	2,622	1	2	2	3
5:15 PM	10	9	278	14	0	35	248	11	0	7	3	30	0	21	3	13	682		2	0	4	1
5:30 PM	3	14	275	9	1	22	240	7	0	14	3	22	0	15	5	14	644		0	0	1	0
5:45 PM	3	10	231	8	0	31	232	4	0	9	6	28	0	11	7	13	593		0	1	2	0
Count Total	45	116	2,115	77	3	275	2,056	67	0	101	33	200	0	123	47	124	5,382		9	21	19	16
Peak Hour	28	64	1,109	45	2	142	1,070	39	0	51	15	100	0	71	20	70	2,826		4	6	8	7



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

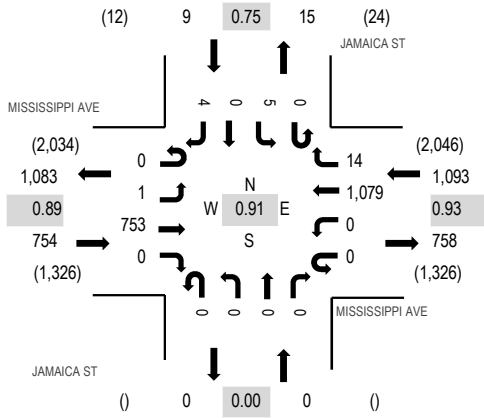
Location: 2 JAMAICA ST & MISSISSIPPI AVE AM

Date: Thursday, February 2, 2023

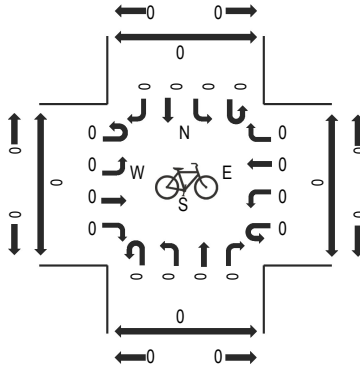
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

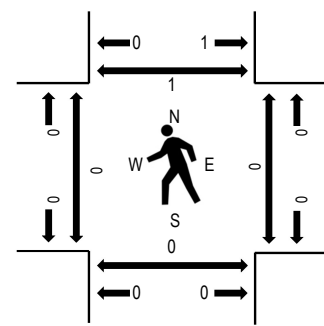
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	MISSISSIPPI AVE Eastbound				MISSISSIPPI AVE Westbound				JAMAICA ST Northbound				JAMAICA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	120	0	0	0	183	2	0	0	0	0	0	0	0	0	305	1,644	0	0	0	0
7:15 AM	0	1	125	0	0	0	244	0	0	0	0	0	0	0	0	0	370	1,849	0	0	0	0
7:30 AM	0	0	182	0	0	0	284	5	0	0	0	0	0	2	0	1	474	1,856	0	0	0	0
7:45 AM	0	0	212	0	0	0	276	5	0	0	0	0	0	0	0	2	495	1,805	0	0	0	0
8:00 AM	0	1	210	0	0	0	296	2	0	0	0	0	0	1	0	0	510	1,740	0	0	0	0
8:15 AM	0	0	149	0	0	0	223	2	0	0	0	0	0	2	0	1	377		0	0	0	1
8:30 AM	0	2	138	0	0	0	281	1	0	0	0	0	0	0	0	1	423		0	0	0	1
8:45 AM	0	1	185	0	0	0	240	2	0	0	0	0	0	0	0	2	430		0	0	0	0
Count Total	0	5	1,321	0	0	0	2,027	19	0	0	0	0	0	5	0	7	3,384		0	0	0	2
Peak Hour	0	1	753	0	0	0	1,079	14	0	0	0	0	0	5	0	4	1,856		0	0	0	1



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

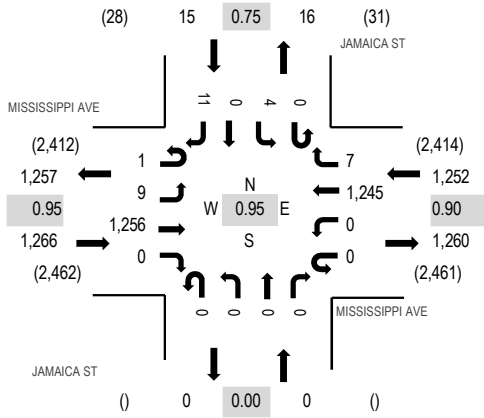
**Location:** 2 JAMAICA ST & MISSISSIPPI AVE PM

**Date:** Thursday, February 2, 2023

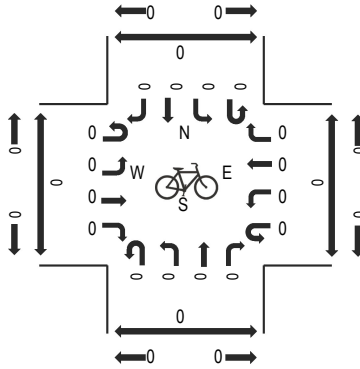
**Peak Hour:** 04:00 PM - 05:00 PM

**Peak 15-Minutes:** 04:00 PM - 04:15 PM

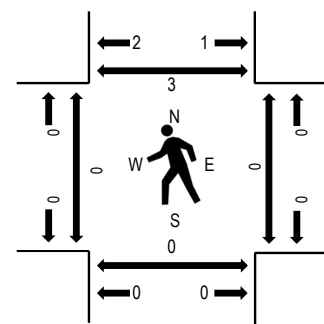
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	MISSISSIPPI AVE Eastbound				MISSISSIPPI AVE Westbound				JAMAICA ST Northbound				JAMAICA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	1	333	0	0	0	322	4	0	0	0	0	0	0	0	5	665	2,533	0	0	0	0
4:15 PM	0	2	307	0	0	0	291	1	0	0	0	0	0	1	0	2	604	2,485	0	0	0	0
4:30 PM	1	3	315	0	0	0	286	1	0	0	0	0	0	0	0	3	609	2,516	0	0	0	2
4:45 PM	0	3	301	0	0	0	346	1	0	0	0	0	0	3	0	1	655	2,461	0	0	0	1
5:00 PM	0	1	308	0	1	0	302	3	0	0	0	0	0	1	0	1	617	2,371	0	0	0	0
5:15 PM	0	1	326	0	0	0	301	3	0	0	0	0	0	2	0	2	635		0	0	0	2
5:30 PM	0	1	280	0	0	0	265	4	0	0	0	0	0	3	0	1	554		0	0	0	0
5:45 PM	0	1	278	0	0	0	282	1	0	0	0	0	0	2	0	1	565		0	0	0	1
Count Total	1	13	2,448	0	1	0	2,395	18	0	0	0	0	0	12	0	16	4,904		0	0	0	6
Peak Hour	1	9	1,256	0	0	0	1,245	7	0	0	0	0	0	4	0	11	2,533		0	0	0	3

Start Time	02-Feb-23 Thu	EB	WB	Total
12:00 AM		130	132	262
01:00		76	97	173
02:00		73	83	156
03:00		84	68	152
04:00		106	107	213
05:00		215	243	458
06:00		361	486	847
07:00		640	990	1630
08:00		686	1044	1730
09:00		703	849	1552
10:00		695	876	1571
11:00		843	914	1757
12:00 PM		926	1042	1968
01:00		1027	1072	2099
02:00		1058	1177	2235
03:00		1176	1172	2348
04:00		1266	1257	2523
05:00		1196	1155	2351
06:00		1027	958	1985
07:00		728	758	1486
08:00		629	540	1169
09:00		462	395	857
10:00		325	266	591
11:00		190	195	385
Total		14622	15876	30498
Percent		47.9%	52.1%	
AM Peak	-	11:00	08:00	-
Vol.	-	843	1044	-
PM Peak	-	16:00	16:00	-
Vol.	-	1266	1257	-
Grand Total		14622	15876	30498
Percent		47.9%	52.1%	
ADT		ADT 30,498	ADT 30,498	

## **APPENDIX B**

### **Level of Service Definitions**



The following information can be found in the Highway Capacity Manual, Transportation Research Board, 2016:  
Chapter 19 – Signalized Intersections and Chapter 20 – Two-Way Stop Controlled Intersections.

### **Automobile Level of Service (LOS) for Signalized Intersections**

Levels of service are defined to represent reasonable ranges in control delay.

#### **LOS A**

Describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

#### **LOS B**

Describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

#### **LOS C**

Describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

#### **LOS D**

Describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

#### **LOS E**

Describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

#### **LOS F**

Describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

### **Level of Service (LOS) for Unsignalized TWSC Intersections**

Level of Service ( $v/c \leq 1.0$ )	Average Control Delay (s/veh)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

## **APPENDIX C**



























### **Capacity Worksheets**

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Existing Traffic Conditions

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	25	700	10	55	1073	21	12	3	14	31	3	31
Future Volume (vph)	25	700	10	55	1073	21	12	3	14	31	3	31
Satd. Flow (prot)	1770	5075	0	1770	5070	0	3433	1630	0	1770	1606	0
Flt Permitted	0.186			0.320			0.733			0.466		
Satd. Flow (perm)	346	5075	0	596	5070	0	2649	1630	0	868	1606	0
Satd. Flow (RTOR)		4			5			15			34	
Lane Group Flow (vph)	27	772	0	60	1189	0	13	18	0	34	37	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	27.0		11.0	27.0		12.0	12.0		10.0	22.0	
Total Split (%)	18.3%	45.0%		18.3%	45.0%		20.0%	20.0%		16.7%	36.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	27.0	21.5		27.0	21.5		7.5	7.5		17.5	17.5	
Actuated g/C Ratio	0.45	0.36		0.45	0.36		0.12	0.12		0.29	0.29	
v/c Ratio	0.09	0.42		0.16	0.65		0.04	0.08		0.10	0.08	
Control Delay	7.4	15.4		7.9	18.1		23.5	14.8		16.3	7.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.4	15.4		7.9	18.1		23.5	14.8		16.3	7.3	
LOS	A	B		A	B		C	B		B	A	
Approach Delay		15.1			17.6			18.4			11.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	4	74		9	127		2	1		9	1	
Queue Length 95th (ft)	13	104		23	169		8	17		26	19	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1821		375	1819		331	216		335	492	
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	0.09	0.42		0.16	0.65		0.04	0.08		0.10	0.08	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.5

Intersection LOS: B

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15









# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Existing Traffic Conditions







AM Peak Hour

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	12 s	11 s	27 s
 Ø6 (R)	 Ø7	 Ø7	 Ø8
22 s	11 s	27 s	

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Existing Traffic Conditions  
AM Peak Hour

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	753	1079	14	5	4
Future Vol, veh/h	1	753	1079	14	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	818	1173	15	5	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1188	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.34	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.12	-	-
Pot Cap-1 Maneuver	317	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	317	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	21.7
HCM LOS	C		





















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	317	-	-	-	225
HCM Lane V/C Ratio	0.003	-	-	-	0.043
HCM Control Delay (s)	16.4	-	-	-	21.7
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Existing Traffic Conditions

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1109	45	144	1070	39	51	15	100	71	20	70
Future Volume (vph)	92	1109	45	144	1070	39	51	15	100	71	20	70
Satd. Flow (prot)	1770	5055	0	1770	5060	0	3433	1619	0	1770	1647	0
Flt Permitted	0.216			0.195			0.694			0.450		
Satd. Flow (perm)	402	5055	0	363	5060	0	2508	1619	0	838	1647	0
Satd. Flow (RTOR)		10			10			109			76	
Lane Group Flow (vph)	100	1254	0	157	1205	0	55	125	0	77	98	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	24.0		13.0	26.0		13.4	13.4		9.6	23.0	
Total Split (%)	18.3%	40.0%		21.7%	43.3%		22.3%	22.3%		16.0%	38.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	24.0	18.5		28.0	20.5		8.9	8.9		18.5	18.5	
Actuated g/C Ratio	0.40	0.31		0.47	0.34		0.15	0.15		0.31	0.31	
v/c Ratio	0.35	0.80		0.46	0.69		0.15	0.38		0.23	0.17	
Control Delay	11.5	23.8		12.2	19.5		23.4	10.8		17.0	7.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.5	23.8		12.2	19.5		23.4	10.8		17.0	7.0	
LOS	B	C		B	B		C	B		B	A	
Approach Delay		22.9			18.6			14.7			11.4	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	17	149		27	133		9	5		20	6	
Queue Length 95th (ft)	36	197		53	177		22	45		46	34	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1565		345	1735		372	332		337	560	
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	0.35	0.80		0.46	0.69		0.15	0.38		0.23	0.17	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 19.9

Intersection LOS: B

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15









## Timings

### 1: E Mississippi Avenue & S Ironton Street

## Existing Traffic Conditions





PM Peak Hour

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	13.4 s	13 s	24 s
 Ø6 (R)		 Ø7	 Ø8
23 s		11 s	26 s

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Existing Traffic Conditions  
PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1256	1245	7	4	11
Future Vol, veh/h	10	1256	1245	7	4	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1365	1353	8	4	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1361	0	0	1925	681
Stage 1	-	-	-	1357	-
Stage 2	-	-	-	568	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pot Cap-1 Maneuver	261	-	-	103	337
Stage 1	-	-	-	146	-
Stage 2	-	-	-	484	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	261	-	-	99	337
Mov Cap-2 Maneuver	-	-	-	99	-
Stage 1	-	-	-	140	-
Stage 2	-	-	-	484	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	24.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	261	-	-	-	205
HCM Lane V/C Ratio	0.042	-	-	-	0.08
HCM Control Delay (s)	19.4	-	-	-	24.1
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3























# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Background Traffic Conditions

AM Peak Hour - Year 2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	714	10	56	1095	21	12	3	14	32	3	32
Future Volume (vph)	26	714	10	56	1095	21	12	3	14	32	3	32
Satd. Flow (prot)	1770	5075	0	1770	5070	0	3433	1630	0	1770	1606	0
Flt Permitted	0.186			0.313			0.732			0.466		
Satd. Flow (perm)	346	5075	0	583	5070	0	2645	1630	0	868	1606	0
Satd. Flow (RTOR)		4			5			15			35	
Lane Group Flow (vph)	28	787	0	61	1213	0	13	18	0	35	38	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	27.0		11.0	27.0		12.0	12.0		10.0	22.0	
Total Split (%)	18.3%	45.0%		18.3%	45.0%		20.0%	20.0%		16.7%	36.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	27.0	21.5		27.0	21.5		7.5	7.5		17.5	17.5	
Actuated g/C Ratio	0.45	0.36		0.45	0.36		0.12	0.12		0.29	0.29	
v/c Ratio	0.10	0.43		0.16	0.67		0.04	0.08		0.10	0.08	
Control Delay	7.5	15.4		7.9	18.3		23.5	14.8		16.2	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.5	15.4		7.9	18.3		23.5	14.8		16.2	7.2	
LOS	A	B		A	B		C	B		B	A	
Approach Delay		15.2			17.8			18.4			11.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	4	76		9	131		2	1		9	1	
Queue Length 95th (ft)	14	106		24	174		8	17		27	19	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1821		371	1819		330	216		335	493	
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	0.10	0.43		0.16	0.67		0.04	0.08		0.10	0.08	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 47.1%

ICU Level of Service A

Analysis Period (min) 15








## Timings

### 1: E Mississippi Avenue & S Ironton Street

## Background Traffic Conditions







AM Peak Hour - Year 2025

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	12 s	11 s	27 s
 Ø6 (R)	 Ø7	 Ø8	
22 s	11 s	27 s	

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Background Traffic Conditions  
AM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	768	1101	14	5	4
Future Vol, veh/h	1	768	1101	14	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	835	1197	15	5	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1212	0	0 1541 606
Stage 1	-	-	- 1205 -
Stage 2	-	-	- 336 -
Critical Hdwy	5.34	-	- 5.74 7.14
Critical Hdwy Stg 1	-	-	- 6.64 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	3.12	-	- 3.82 3.92
Pot Cap-1 Maneuver	309	-	- 164 377
Stage 1	-	-	- 181 -
Stage 2	-	-	- 638 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	309	-	- 164 377
Mov Cap-2 Maneuver	-	-	- 164 -
Stage 1	-	-	- 180 -
Stage 2	-	-	- 638 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.2
HCM LOS			C



























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	309	-	-	-	219
HCM Lane V/C Ratio	0.004	-	-	-	0.045
HCM Control Delay (s)	16.7	-	-	-	22.2
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Background Traffic Conditions

PM Peak Hour - Year 2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	94	1131	46	147	1091	40	52	15	102	72	20	71
Future Volume (vph)	94	1131	46	147	1091	40	52	15	102	72	20	71
Satd. Flow (prot)	1770	5055	0	1770	5060	0	3433	1619	0	1770	1645	0
Flt Permitted	0.216			0.195			0.693			0.449		
Satd. Flow (perm)	402	5055	0	363	5060	0	2504	1619	0	836	1645	0
Satd. Flow (RTOR)		10			10			111			77	
Lane Group Flow (vph)	102	1279	0	160	1229	0	57	127	0	78	99	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	24.0		13.0	26.0		13.4	13.4		9.6	23.0	
Total Split (%)	18.3%	40.0%		21.7%	43.3%		22.3%	22.3%		16.0%	38.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	24.0	18.5		28.0	20.5		8.9	8.9		18.5	18.5	
Actuated g/C Ratio	0.40	0.31		0.47	0.34		0.15	0.15		0.31	0.31	
v/c Ratio	0.36	0.82		0.46	0.71		0.15	0.38		0.23	0.18	
Control Delay	11.6	24.5		12.4	19.7		23.5	10.8		17.0	7.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.6	24.5		12.4	19.7		23.5	10.8		17.0	7.0	
LOS	B	C		B	B		C	B		B	A	
Approach Delay		23.5			18.9			14.7			11.4	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	17	153		28	136		9	5		20	6	
Queue Length 95th (ft)	37	202		54	181		23	45		47	34	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1565		345	1735		371	334		337	560	
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	0.36	0.82		0.46	0.71		0.15	0.38		0.23	0.18	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 20.3

Intersection LOS: C

Intersection Capacity Utilization 54.6%









ICU Level of Service A

Analysis Period (min) 15

Timings  
 1: E Mississippi Avenue & S Ironton Street

Background Traffic Conditions  
 PM Peak Hour - Year 2025

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	13.4 s	13 s	24 s
 Ø6 (R)		 Ø7	 Ø8
23 s		11 s	26 s

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Background Traffic Conditions  
PM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑		↰	
Traffic Vol, veh/h	10	1281	1270	7	4	11
Future Vol, veh/h	10	1281	1270	7	4	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1392	1380	8	4	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1388	0	0	1963	694
Stage 1	-	-	-	1384	-
Stage 2	-	-	-	579	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pot Cap-1 Maneuver	253	-	-	98	330
Stage 1	-	-	-	140	-
Stage 2	-	-	-	477	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	253	-	-	94	330
Mov Cap-2 Maneuver	-	-	-	94	-
Stage 1	-	-	-	134	-
Stage 2	-	-	-	477	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	24.8
HCM LOS			C



























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	253	-	-	-	198
HCM Lane V/C Ratio	0.043	-	-	-	0.082
HCM Control Delay (s)	19.9	-	-	-	24.8
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Background Traffic Conditions

AM Peak Hour - Year 2040

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	30	840	12	66	1288	25	14	4	17	37	4	37
Future Volume (vph)	30	840	12	66	1288	25	14	4	17	37	4	37
Satd. Flow (prot)	1770	5075	0	1770	5070	0	3433	1634	0	1770	1609	0
Flt Permitted	0.175			0.249			0.728			0.433		
Satd. Flow (perm)	326	5075	0	464	5070	0	2631	1634	0	807	1609	0
Satd. Flow (RTOR)		4			5			18			40	
Lane Group Flow (vph)	33	926	0	72	1427	0	15	22	0	40	44	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	10.6	28.4		11.2	29.0		10.8	10.8		9.6	20.4	
Total Split (%)	17.7%	47.3%		18.7%	48.3%		18.0%	18.0%		16.0%	34.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	28.0	22.9		29.2	23.5		6.3	6.3		15.9	15.9	
Actuated g/C Ratio	0.47	0.38		0.49	0.39		0.10	0.10		0.26	0.26	
v/c Ratio	0.12	0.48		0.21	0.72		0.05	0.12		0.14	0.10	
Control Delay	7.1	15.0		7.6	17.9		24.8	15.5		17.9	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.1	15.0		7.6	17.9		24.8	15.5		17.9	7.7	
LOS	A	B		A	B		C	B		B	A	
Approach Delay		14.7			17.4			19.3			12.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	5	89		10	153		2	1		11	1	
Queue Length 95th (ft)	14	121		25	201		10	19		31	21	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	274	1939		349	1988		276	187		295	455	
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	0.12	0.48		0.21	0.72		0.05	0.12		0.14	0.10	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Pretimed

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.3

Intersection LOS: B

Intersection Capacity Utilization 51.2%

ICU Level of Service A

Analysis Period (min) 15








## Timings

### 1: E Mississippi Avenue & S Ironton Street

## Background Traffic Conditions

AM Peak Hour - Year 2040

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	10.8 s	11.2 s	28.4 s
 Ø6 (R)	 Ø7	 Ø8	
20.4 s	10.6 s	29 s	



HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Background Traffic Conditions  
AM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑		↰	
Traffic Vol, veh/h	1	754	1295	17	6	5
Future Vol, veh/h	1	754	1295	17	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	820	1408	18	7	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1426	0	0 1747 713
Stage 1	-	-	- 1417 -
Stage 2	-	-	- 330 -
Critical Hdwy	5.34	-	- 5.74 7.14
Critical Hdwy Stg 1	-	-	- 6.64 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	3.12	-	- 3.82 3.92
Pot Cap-1 Maneuver	242	-	- 128 321
Stage 1	-	-	- 134 -
Stage 2	-	-	- 642 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	242	-	- 127 321
Mov Cap-2 Maneuver	-	-	- 127 -
Stage 1	-	-	- 133 -
Stage 2	-	-	- 642 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	27.1
HCM LOS			D



























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	242	-	-	-	175
HCM Lane V/C Ratio	0.004	-	-	-	0.068
HCM Control Delay (s)	19.9	-	-	-	27.1
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.2

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Background Traffic Conditions

PM Peak Hour - Year 2040

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	110	1331	54	173	1284	47	61	18	120	85	24	85
Future Volume (vph)	110	1331	54	173	1284	47	61	18	120	85	24	85
Satd. Flow (prot)	1770	5055	0	1770	5060	0	3433	1621	0	1770	1645	0
Flt Permitted	0.195			0.179			0.681			0.398		
Satd. Flow (perm)	363	5055	0	333	5060	0	2461	1621	0	741	1645	0
Satd. Flow (RTOR)		11			10			130			92	
Lane Group Flow (vph)	120	1506	0	188	1447	0	66	150	0	92	118	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	10.6	26.0		12.4	27.8		12.0	12.0		9.6	21.6	
Total Split (%)	17.7%	43.3%		20.7%	46.3%		20.0%	20.0%		16.0%	36.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	25.6	20.5		29.2	22.3		7.5	7.5		17.1	17.1	
Actuated g/C Ratio	0.43	0.34		0.49	0.37		0.12	0.12		0.28	0.28	
v/c Ratio	0.44	0.87		0.57	0.77		0.21	0.47		0.31	0.22	
Control Delay	12.7	25.5		15.5	19.8		25.6	12.7		19.3	7.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.7	25.5		15.5	19.8		25.6	12.7		19.3	7.4	
LOS	B	C		B	B		C	B		B	A	
Approach Delay		24.5			19.3			16.7			12.6	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	19	181		31	161		11	7		25	7	
Queue Length 95th (ft)	40	#265		66	212		27	51		56	39	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	274	1734		327	1886		307	316		298	534	
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	0.44	0.87		0.57	0.77		0.21	0.47		0.31	0.22	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 21.1

Intersection LOS: C

Intersection Capacity Utilization 66.2%

ICU Level of Service C

Analysis Period (min) 15

## Timings

### 1: E Mississippi Avenue & S Ironton Street








## Background Traffic Conditions

PM Peak Hour - Year 2040

# 95th percentile volume exceeds capacity, queue may be longer.










Queue shown is maximum after two cycles.

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	12 s	12.4 s	26 s
 Ø6 (R)	 Ø7	 Ø8	
21.6 s	10.6 s	27.8 s	

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Background Traffic Conditions  
PM Peak Hour - Year 2040





















Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Vol, veh/h	12	1507	1494	8	5	13
Future Vol, veh/h	12	1507	1494	8	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	1638	1624	9	5	14
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1633	0	-	0	2310	817
Stage 1	-	-	-	-	1629	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	191	-	-	-	64	274
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	191	-	-	-	60	274
Mov Cap-2 Maneuver	-	-	-	-	60	-
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	422	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		35.3		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	191	-	-	-	138	
HCM Lane V/C Ratio	0.068	-	-	-	0.142	
HCM Control Delay (s)	25.2	-	-	-	35.3	
HCM Lane LOS	D	-	-	-	E	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Total Traffic Conditions

AM Peak Hour - Year 2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	714	10	56	1095	21	12	3	14	32	3	32
Future Volume (vph)	26	714	10	56	1095	21	12	3	14	32	3	32
Satd. Flow (prot)	1770	5075	0	1770	5070	0	3433	1630	0	1770	1606	0
Flt Permitted	0.186			0.313			0.732			0.466		
Satd. Flow (perm)	346	5075	0	583	5070	0	2645	1630	0	868	1606	0
Satd. Flow (RTOR)		4			5			15			35	
Lane Group Flow (vph)	28	787	0	61	1213	0	13	18	0	35	38	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	27.0		11.0	27.0		12.0	12.0		10.0	22.0	
Total Split (%)	18.3%	45.0%		18.3%	45.0%		20.0%	20.0%		16.7%	36.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	27.0	21.5		27.0	21.5		7.5	7.5		17.5	17.5	
Actuated g/C Ratio	0.45	0.36		0.45	0.36		0.12	0.12		0.29	0.29	
v/c Ratio	0.10	0.43		0.16	0.67		0.04	0.08		0.10	0.08	
Control Delay	7.5	15.4		7.9	18.3		23.5	14.8		16.2	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.5	15.4		7.9	18.3		23.5	14.8		16.2	7.2	
LOS	A	B		A	B		C	B		B	A	
Approach Delay		15.2			17.8			18.4			11.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	4	76		9	131		2	1		9	1	
Queue Length 95th (ft)	14	106		24	174		8	17		27	19	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1821		371	1819		330	216		335	493	
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	0.10	0.43		0.16	0.67		0.04	0.08		0.10	0.08	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 47.1%

ICU Level of Service A

Analysis Period (min) 15








## Timings

### 1: E Mississippi Avenue & S Ironton Street

## Total Traffic Conditions







AM Peak Hour - Year 2025

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	12 s	11 s	27 s
 Ø6 (R)	 Ø7	 Ø8	
22 s	11 s	27 s	

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Total Traffic Conditions  
AM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	768	1101	14	5	4
Future Vol, veh/h	1	768	1101	14	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	835	1197	15	5	4




Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1212	0	0 1541 606
Stage 1	-	-	- 1205 -
Stage 2	-	-	- 336 -
Critical Hdwy	5.34	-	- 5.74 7.14
Critical Hdwy Stg 1	-	-	- 6.64 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	3.12	-	- 3.82 3.92
Pot Cap-1 Maneuver	309	-	- 164 377
Stage 1	-	-	- 181 -
Stage 2	-	-	- 638 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	309	-	- 164 377
Mov Cap-2 Maneuver	-	-	- 164 -
Stage 1	-	-	- 180 -
Stage 2	-	-	- 638 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	309	-	-	-	219
HCM Lane V/C Ratio	0.004	-	-	-	0.045
HCM Control Delay (s)	16.7	-	-	-	22.2
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
3: S Jamaica Street & Site Access

Total Traffic Conditions  
AM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	15	9	0
Future Vol, veh/h	0	0	0	15	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	16	10	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	26	10	10	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	989	1071	1610	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	989	1071	1610	-	-	-
Mov Cap-2 Maneuver	989	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1007	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1610	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-























# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Total Traffic Conditions

PM Peak Hour - Year 2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	1150	46	147	1110	42	52	15	102	74	20	71
Future Volume (vph)	94	1150	46	147	1110	42	52	15	102	74	20	71
Satd. Flow (prot)	1770	5055	0	1770	5055	0	3433	1619	0	1770	1645	0
Flt Permitted	0.216			0.195			0.693			0.449		
Satd. Flow (perm)	402	5055	0	363	5055	0	2504	1619	0	836	1645	0
Satd. Flow (RTOR)		10			10			111			77	
Lane Group Flow (vph)	102	1300	0	160	1253	0	57	127	0	80	99	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	11.0	24.0		13.0	26.0		13.4	13.4		9.6	23.0	
Total Split (%)	18.3%	40.0%		21.7%	43.3%		22.3%	22.3%		16.0%	38.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	24.0	18.5		28.0	20.5		8.9	8.9		18.5	18.5	
Actuated g/C Ratio	0.40	0.31		0.47	0.34		0.15	0.15		0.31	0.31	
v/c Ratio	0.36	0.83		0.46	0.72		0.15	0.38		0.24	0.18	
Control Delay	11.6	25.1		12.4	20.0		23.5	10.8		17.1	7.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.6	25.1		12.4	20.0		23.5	10.8		17.1	7.0	
LOS	B	C		B	C		C	B		B	A	
Approach Delay		24.1			19.2			14.7			11.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	17	156		28	141		9	5		21	6	
Queue Length 95th (ft)	37	#210		54	186		23	45		48	34	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	286	1565		345	1733		371	334		337	560	
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	0.36	0.83		0.46	0.72		0.15	0.38		0.24	0.18	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Pretimed

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

## Timings

### 1: E Mississippi Avenue & S Ironton Street








## Total Traffic Conditions

PM Peak Hour - Year 2025

# 95th percentile volume exceeds capacity, queue may be longer.







Queue shown is maximum after two cycles.

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	13.4 s	13 s	24 s
 Ø6 (R)	 Ø7	 Ø8	
23 s	11 s	26 s	




HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Total Traffic Conditions  
PM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1281	1270	23	20	32
Future Vol, veh/h	31	1281	1270	23	20	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1392	1380	25	22	35
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1405	0	-	0	2018	703
Stage 1	-	-	-	-	1393	-
Stage 2	-	-	-	-	625	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	248	-	-	-	92	326
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	248	-	-	-	79	326
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	452	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.5	0		43.6		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	248	-	-	-	148	
HCM Lane V/C Ratio	0.136	-	-	-	0.382	
HCM Control Delay (s)	21.8	-	-	-	43.6	
HCM Lane LOS	C	-	-	-	E	
HCM 95th %tile Q(veh)	0.5	-	-	-	1.6	

HCM 6th TWSC  
3: S Jamaica Street & Site Access

Total Traffic Conditions  
PM Peak Hour - Year 2025

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	37	37	17	15	2
Future Vol, veh/h	2	37	37	17	15	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	40	40	18	16	2

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	115	17	18	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	881	1062	1599	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	859	1062	1599	-	-	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	5	0
HCM LOS	A		



























Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1049	-	-
HCM Lane V/C Ratio	0.025	-	0.04	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Total Traffic Conditions

AM Peak Hour - Year 2040

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	30	840	12	66	1288	25	14	4	17	37	4	37
Future Volume (vph)	30	840	12	66	1288	25	14	4	17	37	4	37
Satd. Flow (prot)	1770	5075	0	1770	5070	0	3433	1634	0	1770	1609	0
Flt Permitted	0.175			0.249			0.728			0.433		
Satd. Flow (perm)	326	5075	0	464	5070	0	2631	1634	0	807	1609	0
Satd. Flow (RTOR)		4			5			18			40	
Lane Group Flow (vph)	33	926	0	72	1427	0	15	22	0	40	44	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	10.6	28.4		11.2	29.0		10.8	10.8		9.6	20.4	
Total Split (%)	17.7%	47.3%		18.7%	48.3%		18.0%	18.0%		16.0%	34.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	28.0	22.9		29.2	23.5		6.3	6.3		15.9	15.9	
Actuated g/C Ratio	0.47	0.38		0.49	0.39		0.10	0.10		0.26	0.26	
v/c Ratio	0.12	0.48		0.21	0.72		0.05	0.12		0.14	0.10	
Control Delay	7.1	15.0		7.6	17.9		24.8	15.5		17.9	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.1	15.0		7.6	17.9		24.8	15.5		17.9	7.7	
LOS	A	B		A	B		C	B		B	A	
Approach Delay		14.7			17.4			19.3			12.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	5	89		10	153		2	1		11	1	
Queue Length 95th (ft)	14	121		25	201		10	19		31	21	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	274	1939		349	1988		276	187		295	455	
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	0.12	0.48		0.21	0.72		0.05	0.12		0.14	0.10	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Pretimed

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.3

Intersection LOS: B

Intersection Capacity Utilization 51.2%

ICU Level of Service A

Analysis Period (min) 15









## Timings

### 1: E Mississippi Avenue & S Ironton Street

## Total Traffic Conditions





AM Peak Hour - Year 2040

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	10.8 s	11.2 s	28.4 s
 Ø6 (R)		 Ø7	 Ø8
20.4 s		10.6 s	29 s




HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Total Traffic Conditions  
AM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	754	1295	17	6	5
Future Vol, veh/h	1	754	1295	17	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	820	1408	18	7	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1426	0	-	0	1747	713
Stage 1	-	-	-	-	1417	-
Stage 2	-	-	-	-	330	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	242	-	-	-	128	321
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	242	-	-	-	127	321
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	642	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		27.1		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	242	-	-	-	175	
HCM Lane V/C Ratio	0.004	-	-	-	0.068	
HCM Control Delay (s)	19.9	-	-	-	27.1	
HCM Lane LOS	C	-	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

HCM 6th TWSC  
3: S Jamaica Street & Site Access

Total Traffic Conditions  
AM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	18	11	0
Future Vol, veh/h	0	0	0	18	11	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	12	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	32	12	12	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	982	1069	1607	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	982	1069	1607	-	-	-
Mov Cap-2 Maneuver	982	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1607	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	





























# Timings

## 1: E Mississippi Avenue & S Ironton Street

# Total Traffic Conditions

PM Peak Hour - Year 2040

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (vph)	110	1350	54	173	1303	49	61	18	120	85	24	84
Future Volume (vph)	110	1350	54	173	1303	49	61	18	120	85	24	84
Satd. Flow (prot)	1770	5055	0	1770	5060	0	3433	1621	0	1770	1645	0
Flt Permitted	0.195			0.179			0.682			0.398		
Satd. Flow (perm)	363	5055	0	333	5060	0	2465	1621	0	741	1645	0
Satd. Flow (RTOR)		11			10			130			91	
Lane Group Flow (vph)	120	1526	0	188	1469	0	66	150	0	92	117	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.5	10.5		10.5	10.5		9.5	9.5		9.5	9.5	
Total Split (s)	10.6	26.0		12.4	27.8		12.0	12.0		9.6	21.6	
Total Split (%)	17.7%	43.3%		20.7%	46.3%		20.0%	20.0%		16.0%	36.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	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)	5.5	5.5		5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Act Effct Green (s)	25.6	20.5		29.2	22.3		7.5	7.5		17.1	17.1	
Actuated g/C Ratio	0.43	0.34		0.49	0.37		0.12	0.12		0.28	0.28	
v/c Ratio	0.44	0.88		0.57	0.78		0.21	0.47		0.31	0.22	
Control Delay	12.7	26.2		15.5	20.1		25.6	12.7		19.3	7.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.7	26.2		15.5	20.1		25.6	12.7		19.3	7.4	
LOS	B	C		B	C		C	B		B	A	
Approach Delay		25.2			19.6			16.6			12.6	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	19	184		31	165		11	7		25	7	
Queue Length 95th (ft)	40	#272		66	216		27	51		56	39	
Internal Link Dist (ft)		277			247			162			249	
Turn Bay Length (ft)	75			255			60			80		
Base Capacity (vph)	274	1734		327	1886		308	316		298	533	
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	0.44	0.88		0.57	0.78		0.21	0.47		0.31	0.22	

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 66.6%

ICU Level of Service C

Analysis Period (min) 15

## Timings

### 1: E Mississippi Avenue & S Ironton Street







## Total Traffic Conditions

PM Peak Hour - Year 2040

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: E Mississippi Avenue & S Ironton Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.6 s	12 s	12.4 s	26 s
 Ø6 (R)		 Ø7	 Ø8
21.6 s		10.6 s	27.8 s

HCM 6th TWSC  
2: E Mississippi Avenue & S Jamaica Street

Total Traffic Conditions  
PM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑		↰	
Traffic Vol, veh/h	33	1507	1494	24	21	34
Future Vol, veh/h	33	1507	1494	24	21	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	1638	1624	26	23	37




Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1650	0	0	2364	825
Stage 1	-	-	-	1637	-
Stage 2	-	-	-	727	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pot Cap-1 Maneuver	188	-	-	59	271
Stage 1	-	-	-	97	-
Stage 2	-	-	-	399	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	188	-	-	48	271
Mov Cap-2 Maneuver	-	-	-	48	-
Stage 1	-	-	-	78	-
Stage 2	-	-	-	399	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	87.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	188	-	-	-	98
HCM Lane V/C Ratio	0.191	-	-	-	0.61
HCM Control Delay (s)	28.6	-	-	-	87.3
HCM Lane LOS	D	-	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	2.9

HCM 6th TWSC  
3: S Jamaica Street & Site Access

Total Traffic Conditions  
PM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	37	37	20	18	2
Future Vol, veh/h	2	37	37	20	18	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	40	40	22	20	2

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	123	21	22	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	102	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	872	1056	1593	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	850	1056	1593	-	-	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	922	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	4.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1593	-	1043	-	-
HCM Lane V/C Ratio	0.025	-	0.041	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-