Appendix D: Traffic Study

PROPOSED TULSA VA HOSPITAL TRAFFIC STUDY

Prepared for:

U.S. Department of Veterans Affairs (VA)

Office of Construction and Facilities Management

June 2022

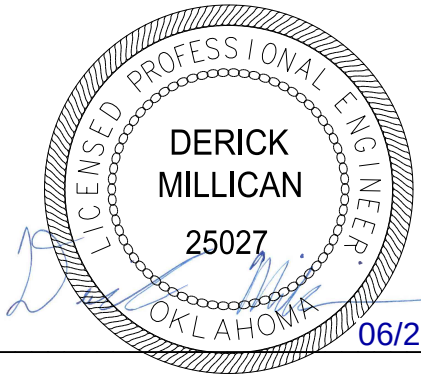
Olsson Project No. 021-07771

TRAFFIC ENGINEER'S CERTIFICATION

This study was prepared under the direct supervision of a licensed civil engineer with 14 years of experience in the field of traffic engineering.

Prepared by:

Firm License No. 2483
11600 Broadway Extension; Suite 300
Oklahoma City, OK 73114
(405) 242-6600



06/27/2022

Derick Millican, PE, PTOE, RSP1

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1 INTRODUCTION AND OBJECTIVE

This report documents the results of a traffic study conducted for the proposed construction of the Tulsa VA Hospital located at 440 South Houston Avenue in Downtown Tulsa, Oklahoma. The proposed development is located south of Charles Page Blvd. (3rd St.) along S Houston Avenue between W 3rd Street and W 7th Street and north of 7th St. Lawton Dr. is located on the west edge of the site, and Houston Ave. is located on the east edge of the site. Proposed access points are generally similar to those currently provided to the existing site with new access points proposed including one on Houston Ave. and one on Lawton Dr. Additional recommended improvements to the drives are provided herein.

A map showing the general location of the proposed development is illustrated in **Figure 1**.

This traffic study was conducted to analyze the traffic characteristics, identify expected trips that would be generated by the proposed Tulsa VA Hospital, how the trips flow through the study network, and to determine the effects of site traffic on the surrounding roadway network. In addition to the VA Hospital, the Oklahoma State University Center for Health Sciences (OSU CHS Mental Health Hospital) is also considered in this analysis as part of another development in the surrounding area with potential influences on the traffic generated by the development. There are six separate traffic scenarios analyzed as part of this report:

- 2021 Base Conditions (Base Year)
- 2030 Base Conditions (Horizon Year)
- 2021 Base + VA Hospital Traffic on Proposed Network Conditions
- 2030 Base + VA Hospital Traffic on Proposed Network Conditions
- 2021 Base + VA Hospital + OSU CHS MH Hospital Traffic on Proposed Network
- 2030 Base + VA Hospital + OSU CHS MH Hospital Traffic on Proposed Network

Specific recommendations are included at the end of this report.

1.1 Methodology

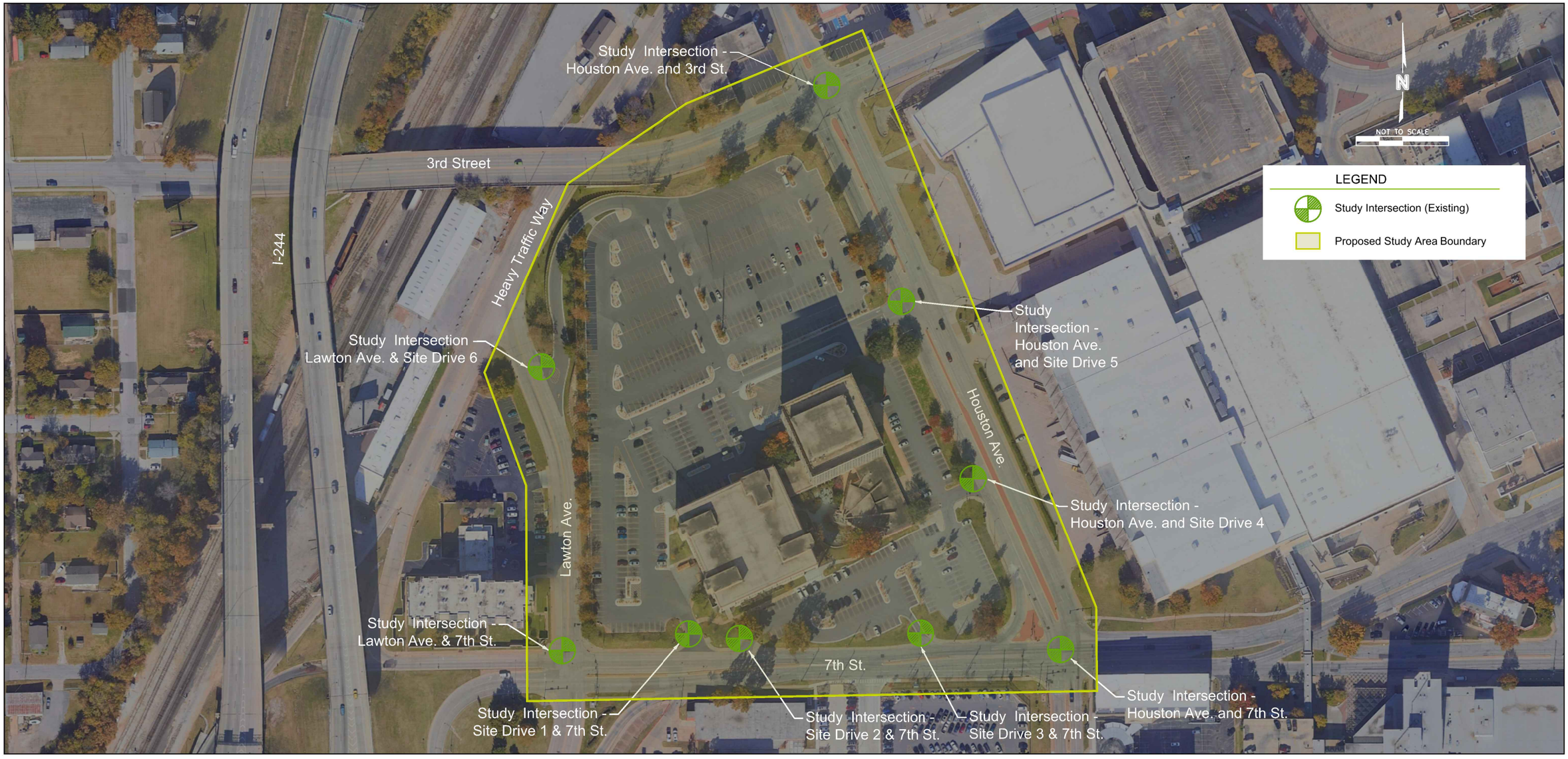
This traffic study was prepared in accordance with the Institute of Transportation Engineers (ITE) Recommended Practice *Transportation Impact Analyses for Site Development* (2010) and with City of Tulsa requirements for Traffic Impact Studies.

Trip generation estimates developed for this study are based on the ITE *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE). The Manual is the most widely used industry resource for this type of data. The operating conditions of the

Figure 1:

Study Area Map

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



study intersections were analyzed with *Synchro*, version 11.0 based on the *Highway Capacity Manual, 6th Edition* and *SimTraffic,* version 11.0. The procedures describe traffic operating conditions in terms of the Level of Service (LOS). In general, LOS 'A' represents the best operating traffic conditions with very little delay and LOS 'F' are worse operating conditions with long delays. *SimTraffic* is a microscopic traffic simulation tool that was used to assess anticipated queuing extents for all intersection approaches within the study boundary.

This traffic study was prepared under the direction of a Professional Engineer who is also certified as a Professional Traffic Operations Engineer (PTOE) by the Transportation Professional Certification Board (TPCB).

1.2 Basis of Assumptions

The site plan was provided by the site design team, including the layout of the proposed VA Hospital and the OSU CHS MH Hospital. The site design team provided information on how the buildings would be used, how many employees were estimated, the number of beds, and the number of daily patients anticipated. This information was provided via email from November 2021 through March 2022.

The study area boundary was defined based on the peak hour turning movement volumes and the layout of the site and drive locations. Peak hour turning movement volumes for all intersections within the study boundary were collected in the field on a typical weekday in November 2021. Trip assignments, the assignment of site-generated traffic to the local and regional roadway network, were made based on existing local and Tulsa metro area traffic patterns, the layout of the site, and information provided by the site design team.

2 DATA COLLECTION

The data collection effort included obtaining peak hour turning movement counts and documentation of current roadway geometrics and traffic control.

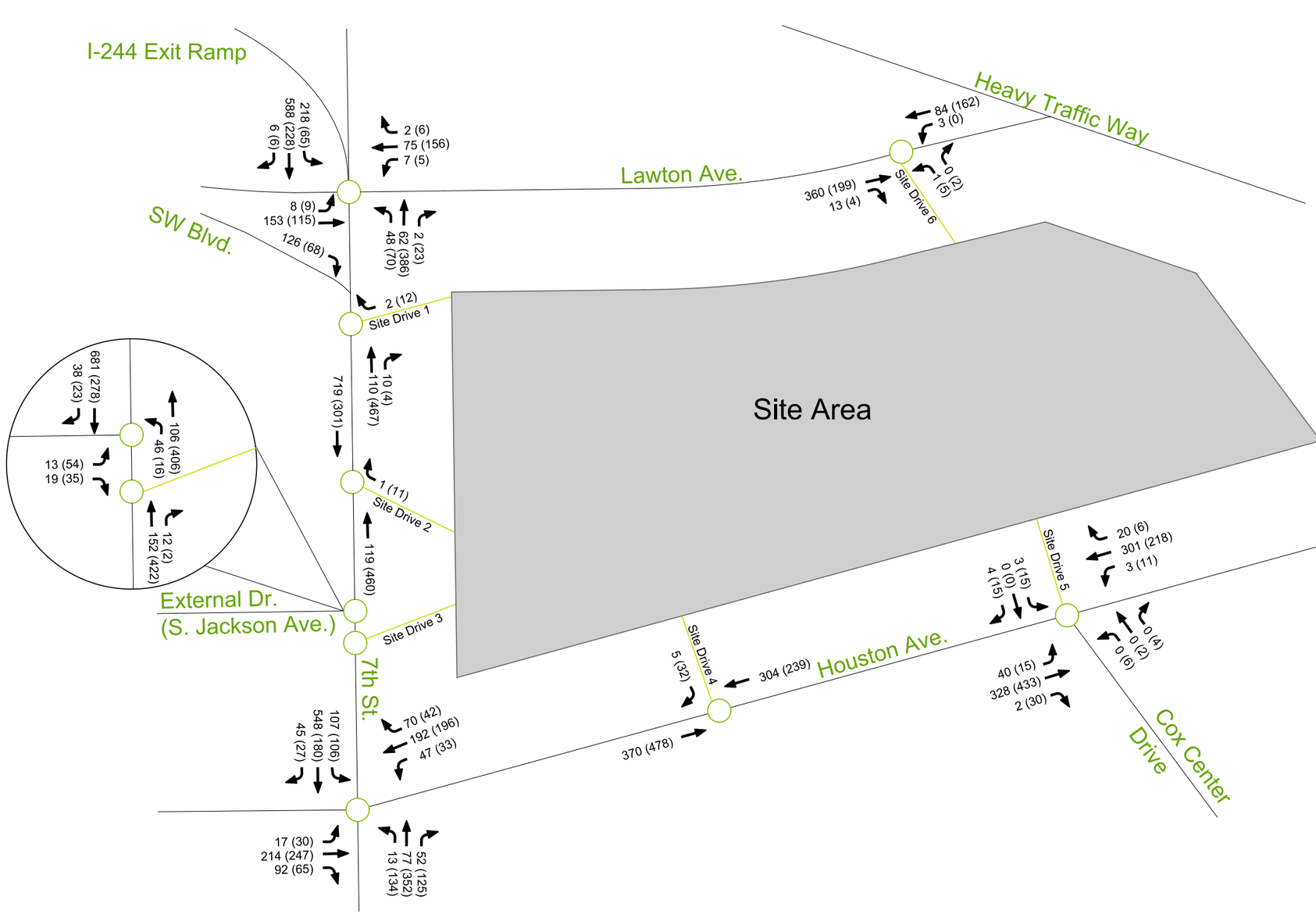
2.1 Peak Hour Turning Movement Counts

Olsson coordinated collection of peak hour turning movement counts for eight study area intersections on Thursday, November 18th, 2021. Turning movement counts were taken at 15-minute intervals from 7:00 am to 9:00 am and from 3:30 pm to 6:00 pm. Raw intersection turning movement traffic data is provided in **Appendix A**.

Based on the traffic volumes, the peak hour periods for the intersection were determined to be 7:45 am to 8:45 am and 4:30 pm to 5:30 pm for the AM and the PM peak hour, respectively. The 2021 base peak hour traffic volumes are presented in **Figure 2**.

Figure 2:
2021 Base Peak Hour Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



NOT TO SCALE

NOTES:

1. Peak-hour factors were calculated for each individual lane group.

Lane group PHFs were utilized for operational analysis.

LEGEND

AM (PM) Peak Hour Volume

AM Peak Hour: 7:45 am - 8:45 am
PM Peak Hour: 4:30 pm - 5:30 pm

$\%HV_{AM\ PEAK}$ = 2.0%	Percent Heavy Vehicle (AM Peak)
$\%HV_{PM\ PEAK}$ = 2.0%	Percent Heavy Vehicle (PM Peak)
$PHF_{AM\ PEAK}$ = 0.88	Peak Hour Factor (AM Peak)
$PHF_{PM\ PEAK}$ = 0.82	Peak Hour Factor (PM Peak)

3 EXISTING CONDITIONS

Existing traffic conditions were evaluated to identify any existing deficiencies and to provide a baseline for comparison purposes.

3.1 Network Characteristics

There are several significant streets within the study area: S Houston Ave., W 7th St., S Lawton Ave., and W 3rd St. Other highways and streets near the study area that were considered with this traffic study include Interstate 244 (I-244), State Highway 412 (SH-412), Interstate 444 (I-444), Heavy Traffic Way, Cox Center Drive, Frisco Ave., 2nd St. and Denver Ave.

The proposed development site is located south of Charles Page Blvd. (3rd St.) along S Houston Avenue between W 3rd Street and W 7th Street and north of 7th St. Lawton Dr. is located on the west edge of the site, and Houston Ave. is located on the east edge of the site. Various existing access points are currently provided to the site along 7th St., Houston Ave., and Lawton Ave. Three site drives are currently provided to 7th St., two to Houston Ave., and one to Lawton Ave.

S Houston Avenue is north-south major collector as classified by ODOT. It is a divided facility that provides four lanes (two northbound and two southbound) with a raised center median restricting full access to key intersections only. Near the intersection with Cox Center Drive and Site drive 5, Houston Ave. is a six-lane facility (three lanes in both directions). At the intersection with W 3rd Street, S Houston Avenue becomes just a two-lane facility to the north (with one lane in each direction). The speed limit is 25 mph along this corridor.

There are four study intersections located along Houston Avenue:

- signalized intersection at W 3rd St.,
- stop-controlled intersection at Site Drive 5,
- one-way, right-out only access at Site Drive 4, and
- signalized intersection at W 7th St.

Sidewalks are provided on both sides of the street. Crosswalks and pedestrian signals to cross Houston Avenue are provided at the intersections with W 3rd St. and W 7th St.

W 7th Street is classified by ODOT as a major collector. This street is a four-lane facility. It provides two lanes for both the eastbound and westbound directions. The speed limit is 25 mph along this street. Four intersections were studied along W 7th Street (excluding Houston Ave. and 7th St.):

- right-in only one-way access at Site Drive 3,
- right-in, right-out only access at Site Drive 1,
- right-out only one-way access at Site Drive 2, and
- signalized intersection at S Lawton Avenue.

Transit service is present in this corridor with westbound bus stops located west of the intersection of S Lawton Avenue and W 7th Street. The is one westbound bus stop located west of the intersection of S Houston Avenue and W 7th Street. Sidewalks are provided on both sides of the street. Crosswalks and pedestrian signals to cross W 7th St. are provided at the intersections of Houston Avenue and Lawton Avenue.

S Lawton Avenue is classified by ODOT as a minor arterial. S Lawton Ave. currently has one access point serving the study site. S Lawton Avenue is an undivided four lanes facility. The posted speed limit is 25 mph along this street. West of S Lawton Avenue there is a 150-unit housing community. There is a bus stop located north of the intersection of S Lawton Avenue and W 7th Street. Sidewalks are provided crossing S Lawton Ave., but there are no sidewalks along the corridor.

W 3rd Street (Charles Page Blvd.) is classified by ODOT as a minor arterial and intersects with S Houston Avenue. It has two lanes for both the eastbound and westbound directions (four lanes total), and the speed limit along the corridor posted speed limit is 35-mph. A 35-mph design speed was assumed for analysis purposes. The frontage along W 3rd Street is primarily residential land use serving many single-family and multi-family residential neighborhoods in the vicinity of the project site.

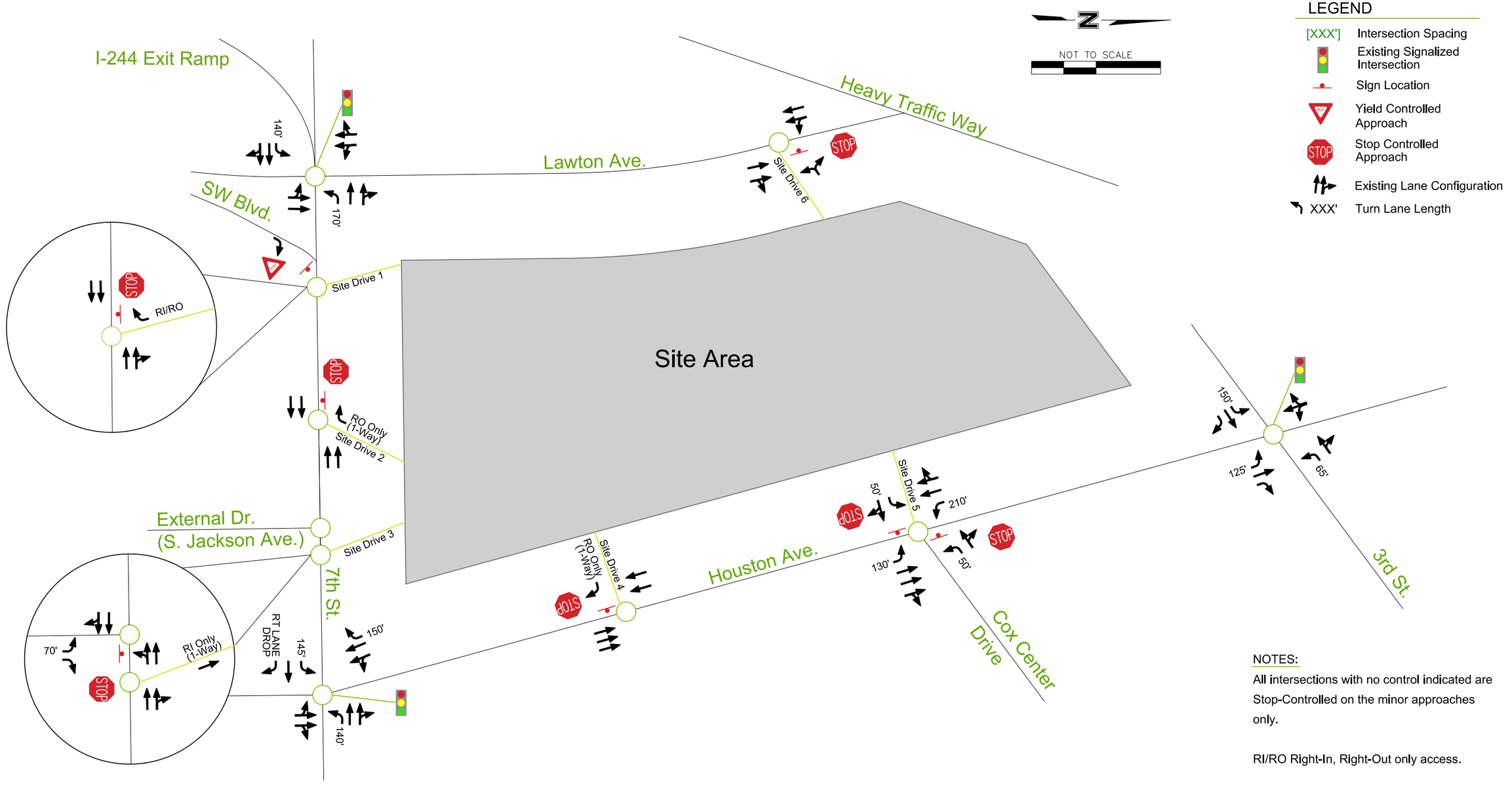
I-244 I-444 are important interstate highways that provide access to various key exits in the Downtown Tulsa area. They are both part of Downtown Tulsa's inner dispersal loop. The speed limits are 55 mph for both facilities.

In summary, the signalized intersections are S Houston Ave. & W 3rd St., S Lawton Ave. & W 7th St. (with a northbound channelized right-turn lane), and S Houston Ave. & W 7th St (with a southbound channelized right-turn lane). All other study intersections are currently unsignalized and are two-way stop controlled (TWSC) with stop signs in place on the minor street/drive.

Existing lane configurations and traffic control are illustrated in **Figure 3**.

Figure 3:
Existing Lane Configurations and Traffic Control

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



NOTES:

All intersections with no control indicated are Stop-Controlled on the minor approaches only.

RI/RO Right-In, Right-Out only access.

Table 1. Existing Roadway Characteristics

Roadway	Section	Median Type	Posted Speed	Functional Classification
S Houston Ave.	4-lanes	Raised Median	25 mph	Major Collector
W 7th St.	4-lanes	Raised Median	25 mph	Major Collector
S Lawton Ave.	4-lanes	Undivided	25 mph	Minor Arterial
W 3rd St.	4-lanes	Undivided	35 mph	Minor Arterial
Heavy Traffic Way	4-lanes	Undivided	25 mph	Major Collector
I-244	6-lanes	Divided Freeway	55 mph	Interstate
I-444	6-lanes	Divided Freeway	55 mph	Interstate

3.2 2021 Base Conditions Capacity Analysis Summary

Analysis was conducted using *Synchro Version 11.0* based on *Highway Capacity Manual, 6th Edition* and *SimTraffic, Version 11.0*. Capacity analyses were performed for the existing study intersections utilizing the existing lane configurations and traffic control. The results of this type of analysis focus on movement delays that results from the intersection control type and the interaction of vehicles with each other and the specific characteristics of the location under study. Due to the two-phase signal phasing at the Houston and 7th Street intersection, HCM 6th Edition methodologies are not applicable. For the purposes of this study, HCM 2000 Edition methodologies were used instead at this intersection so that the operational analysis could be provided for the base conditions and proposed conditions with a Phase 2 for North/South and Phase 4 for East/West movements.

For simplicity, the amount of control delay is equated to a grade or Level of Service (LOS) based on thresholds of driver acceptance. LOS is one of the several performance measures that can be used to evaluate traffic conditions. The amount of delay is assigned a letter grade A through F, LOS A representing little or no delay and LOS F representing very high delay. Generally, LOS D is not unusual for Downtown Tulsa or for many downtown urban areas in the Southwest region. **Table 2** shows the delays associated with each LOS grade for signalized and unsignalized intersections, respectively. For the signalized intersections, timings and clearances are intended to be consistent with those in the field.

Table 2. Intersection LOS Criteria

Level of Service	Average Control Delay (seconds) Signalized	Average Control Delay (seconds) Unsignalized
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Highway Capacity Manual (HCM, 6th Ed.)

Results of the 2021 base year existing conditions analyses are summarized by lane group in **Table 3**. The weighted average delay of the three signalized intersections resulted in 18.4 seconds (LOS B) in the AM Peak and 16.0 seconds (LOS B) in the PM Peak.

The overall signalized intersection results are summarized as follows:

- Houston Ave. & 3rd St. Signal
  - AM Peak: C (20.4 s delay) PM Peak: B (14.6 s delay)
- Houston Ave. & 7th St. Signal
  - AM Peak: B (15.4 s delay) PM Peak: B (12.5 s delay)
- Lawton Ave. & 7th St. Signal
  - AM Peak: C (20.7 s delay) PM Peak: B (19.9 s delay)

All lane groups operate at LOS C or better, including all of the minor road approach drives serving the existing site.

Estimated maximum queue lengths (95th percentile queues) at the existing site drives are all less than 50 feet currently, or two passenger car vehicle lengths.

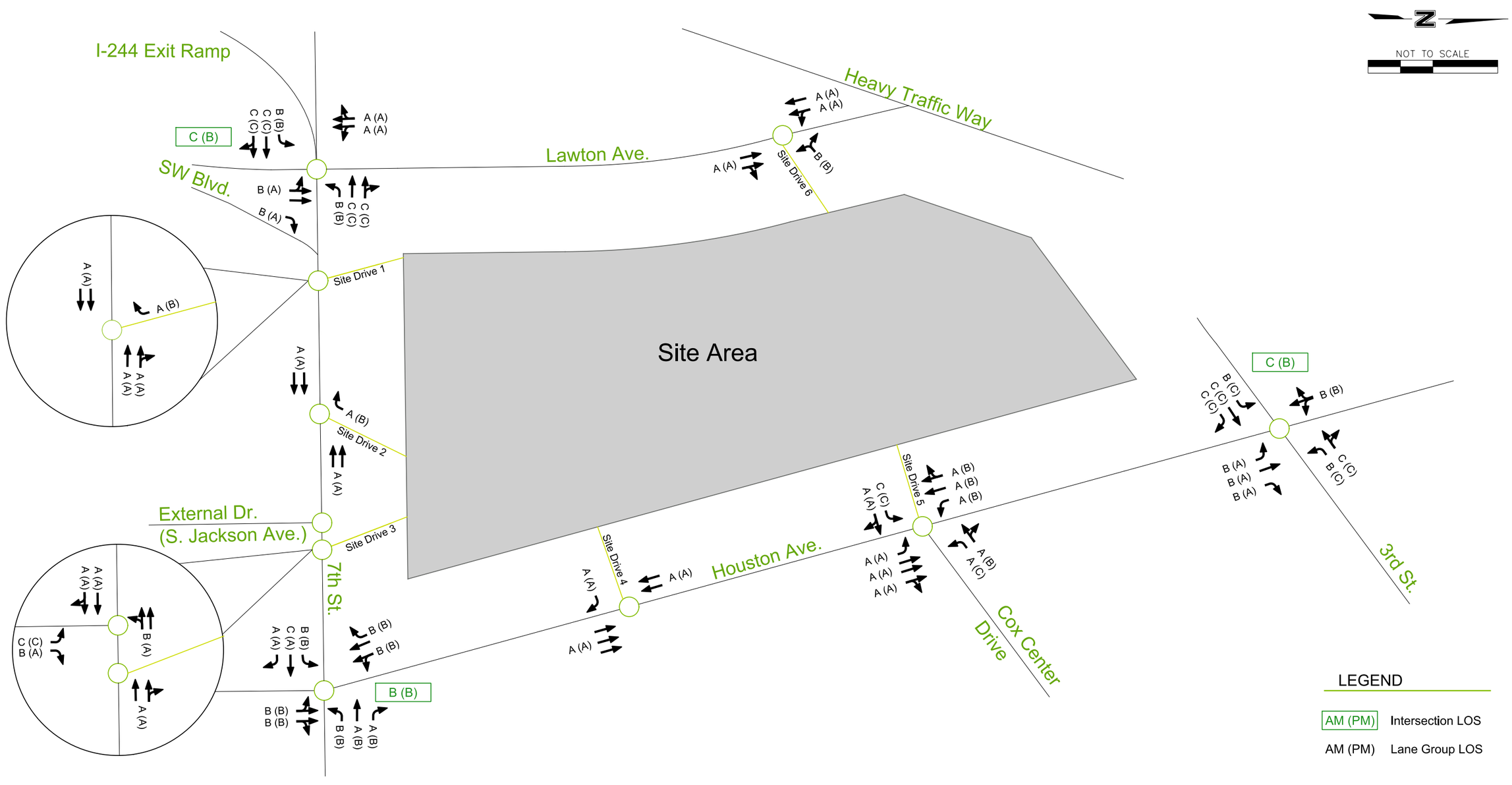
The 2021 Base Capacity Analysis Summary is illustrated in **Figure 4**. Detailed *Synchro* and *SimTraffic* reports can be found in **Appendix B**.

Table 3. 2021 Base Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	20.4 (C)	14.6 (B)	3rd St. EB	Left-Turn	18.8 (B)	23.6 (C)
				Thru	22.3 (C)	25.6 (C)
				Right-Turn	31.3 (C)	31.4 (C)
			3rd St. WB	Left-Turn	18.9 (B)	21.3 (C)
				Thru/Rt	21.0 (C)	23.8 (C)
			Houston Ave. NB	Left-Turn	12.1 (B)	7.6 (A)
				Thru	10.6 (B)	6.0 (A)
				Right-Turn	12.5 (B)	8.3 (A)
			Houston Ave. SB	Lt/Thru/Rt	18.2 (B)	13.2 (B)
Houston Ave. & 7th St.	15.4 (B)	12.5 (B)	7th St. EB	Left-Turn	12.2 (B)	14.8 (B)
				Thru	21.5 (C)	9.3 (A)
				Thru/Rt	9.4 (A)	7.6 (A)
			7th St. WB	Left-Turn	10.6 (B)	10.7 (B)
				Thru	9.6 (A)	10.3 (B)
				Thru/Rt	9.6 (A)	10.3 (B)
			Houston Ave. NB	Thru/Lt	13.4 (B)	15.9 (B)
				Thru/Rt	13.4 (B)	15.9 (B)
			Houston Ave. SB	Thru/Lt	14.1 (B)	15.8 (B)
				Thru	14.1 (B)	15.8 (B)
				Right-Turn	12.0 (B)	13.6 (B)
7th St. & Lawton Ave.	20.7 (C)	19.9 (B)	7th St. EB	Left-Turn	17.7 (B)	19.3 (B)
				Thru	26.1 (C)	22.5 (C)
				Thru/Rt	26.0 (C)	22.5 (C)
			7th St. WB	Left-Turn	21.8 (C)	17.4 (B)
				Thru	25.3 (C)	25.6 (C)
				Thru/Rt	25.3 (C)	25.6 (C)
			Lawton Ave. NB	Thru/Lt	10.0 (B)	8.9 (A)
				Thru/Rt	10.1 (B)	8.9 (A)
			Lawton Ave. SB	Thru/Lt	9.6 (A)	9.1 (A)
				Thru/Rt	9.7 (A)	9.2 (A)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	16.5 (C)	15.5 (C)
				Thru/Rt	9.8 (A)	9.3 (A)
			Site Drive 5 WB	Left-Turn	0.0 (A)	17.9 (C)
				Thru/Rt	0.0 (A)	13.9 (B)
			Houston Ave. NB	Left-Turn	8.5 (A)	7.9 (A)
				Thru	8.5 (A)	7.9 (A)
				Thru/Rt	8.5 (A)	7.9 (A)
			Houston Ave. SB	Left-Turn	9.7 (A)	10.7 (B)
				Thru	9.7 (A)	10.7 (B)
				Thru/Rt	9.7 (A)	10.7 (B)
7th St. & External Dr.	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			7th St. WB	Thru/Lt	10.1 (B)	8.2 (A)
				Thru	0.3 (A)	0.1 (A)
			External Dr. NB	Left-Turn	24.6 (C)	17.3 (C)
				Right-Turn	11.5 (B)	9.8 (A)
7th St. & Site Drive 1	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
			7th St. WB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Site Drive 1 SB	Right-Turn	8.7 (A)	10.5 (B)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	8.2 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
			Site Drive 6 WB	Lt/Rt	12.2 (B)	10.4 (B)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Right-Turn	9.7 (A)	9.4 (A)
			Houston Ave. NB	Thru	0.0 (A)	0.0 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
7th St. & Site Drive 2	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
			7th St. WB	Thru	0.0 (A)	0.0 (A)
			7th St. NB	Thru	0.0 (A)	0.0 (A)
			Site Drive 2	Right-Turn	8.7 (A)	10.4 (B)

Figure 4:
2021 Base Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



4 FUTURE BASE TRAFFIC VOLUMES AND ANALYSIS

To evaluate 2030 conditions, it was necessary to establish peak hour volumes for 2030. Current traffic volumes were used as a basis for peak hour volume projections. Design Year 2030 (Full Build-out Horizon) volumes were applied to the network and capacity analyses were performed. Base 2030 volumes are volume projections of the existing traffic on the network without any additional traffic added for vehicular trips associated with the site improvements planned for the VA Hospital or the OSU CHS MH Hospital.

4.1 Future Base Traffic Volumes (2030)

Based on a sampling of recent AADT traffic counts in the vicinity of the site, the following historical traffic volumes were recorded along with the average annual linear growth rates indicated below. The historical counts below were taken from ODOT's AADT traffic map (on January 28th, 2022, via the file path below). Since traffic volumes have been more variable since early 2020, the more recent data points have been excluded.

- AADT Location 1: Southwest Blvd. south of 7th St.
  - 2015 AADT: 4,810 vpd
  - 2017 AADT: 5,600 vpd (8.21% average annual increase)
- AADT Location 2: Denver Ave. north of 8th St.
  - 2015 AADT: 9,300 vpd
  - 2017 AADT: 9,700 vpd (2.15% average annual increase)
- AADT Location 3: US-75 east of I-244 junction
  - 2015 AADT: 49,300 vpd
  - 2019 AADT: 51,000 vpd (0.86% average annual increase)
- AADT Location 4: I-244 north of US-75 junction
  - 2015 AADT: 67,800 vpd
  - 2019 AADT: 70,000 vpd (0.81% average annual increase)

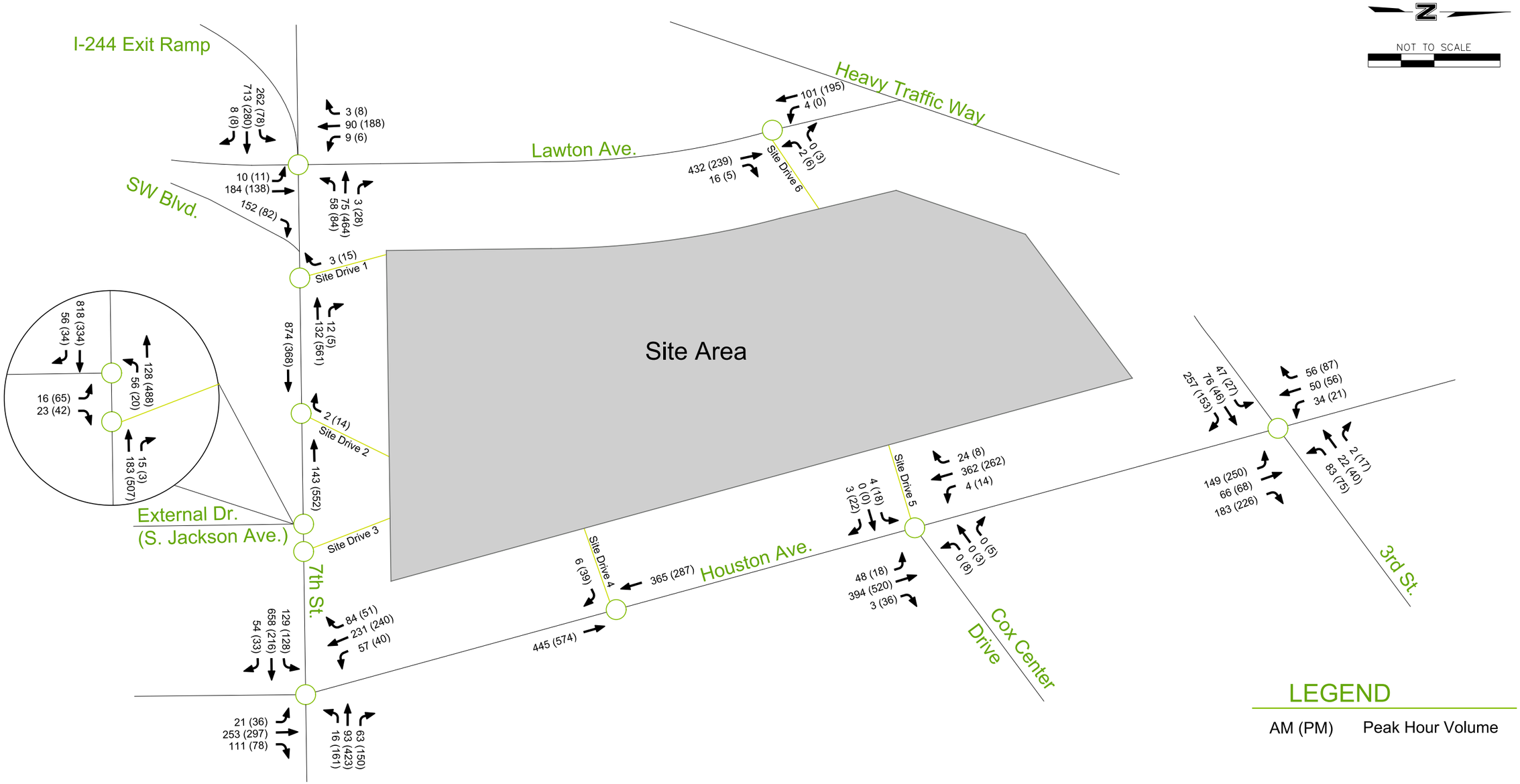
Averaging the rates of the above volumes leads to an overall average annual increase of 3.01%. Extra weight was given to the Denver Ave. count location (at 2.15% annual growth) because it has a higher volume than most of the other downtown street counts available and is considered a better indicator of downtown traffic growth overall. The two freeway volume locations (Locations 3 and 4) are better indicators of more regional traffic patterns with a large number of trips that don't travel on downtown streets. Future traffic volumes were determined by applying a growth rate to existing traffic volumes. Based on the considerations above, a linear growth trend of 2.5% was used to develop 2030 projected volumes. The growth trend projection was applied directly to the peak hour turning movement volumes to develop the 2030 base volumes.

The 2030 base peak hour volumes are shown in **Figure 5**.

ODOT AADT Traffic Counts Site: *https://spotlight-okdot.hub.arcgis.com/apps/aadt-traffic-counts-2/explore*

Figure 5:
2030 Base Peak Hour Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



4.2 2030 Base Conditions Capacity Analysis Summary

Capacity analysis for 2030 conditions was conducted to analyze expected operations and as a baseline for comparison purposes. No baseline improvements were assumed for the study area intersections for this scenario.

Results of the 2030 base year existing conditions analyses are summarized by lane group in **Table 4**. The weighted average delay at the signalized intersection resulted in 25.7 seconds (LOS C) in the AM Peak and 20.7 seconds (LOS C) in the PM Peak. Results of the 2030 base year existing conditions analysis indicate lane group LOS D or worse for the following traffic movement lane groups:

- Houston Ave. & 3rd St. Signal
    - Eastbound Right-Turn: D (AM Peak)

All other lane groups operate at LOS C or better, including all other minor road approach drives serving the existing site. The overall signalized intersection results are summarized as follows:

- Houston Ave. & 3rd St. Signal
    - AM Peak: C (23.6 s delay) PM Peak: B (16.1 s delay)
- Houston Ave. & 7th St. Signal
    - AM Peak: C (20.2 s delay) PM Peak: B (14.0 s delay)
- Lawton Ave. & 7th St. Signal
    - AM Peak: C (21.2 s delay) PM Peak: C (20.3 s Delay)

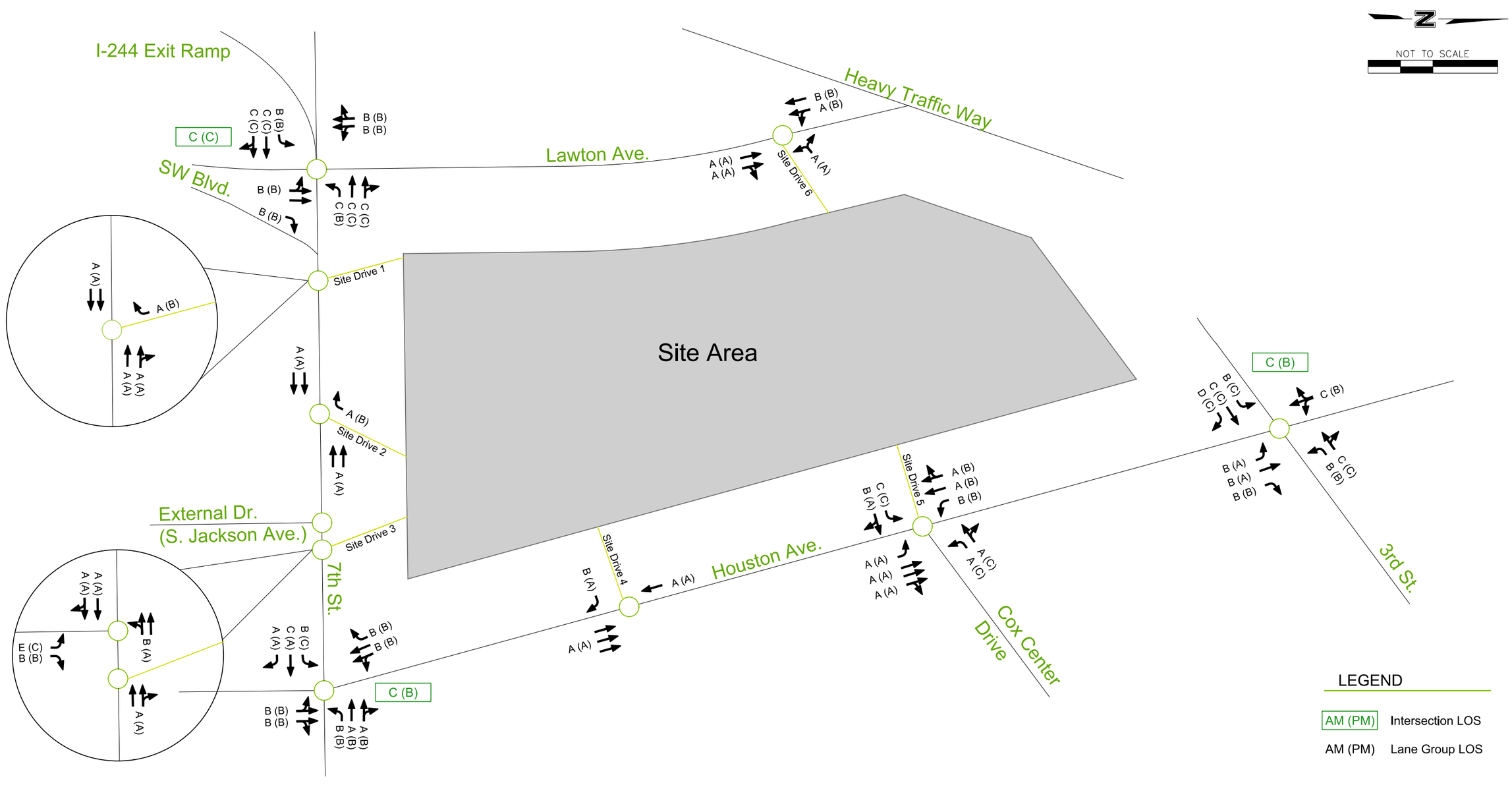
Estimated maximum queue lengths (95th percentile queues) at the existing site drives are all less than 50 feet currently, or two passenger car vehicle lengths. The 2030 Base Capacity Analysis Summary is illustrated in **Figure 6**. Detailed results may be found in **Appendix B**.

Table 4. 2030 Base Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	23.6 (C)	16.1 (B)	3rd St. EB	Left-Turn	18.6 (B)	23.5 (C)
				Thru	21.8 (C)	25.9 (C)
				Right-Turn	38.1 (D)	33.9 (C)
			3rd St. WB	Left-Turn	18.1 (B)	20.7 (C)
				Thru/Rt	20.1 (C)	23.7 (C)
			Houston Ave. NB	Left-Turn	14.7 (B)	8.9 (A)
				Thru	12.7 (B)	6.8 (A)
				Right-Turn	15.6 (B)	10.1 (B)
			Houston Ave. SB	Lt/Thru/Rt	22.3 (C)	15.5 (B)
Houston Ave. & 7th St.	20.2 (C)	14.0 (B)	7th St. EB	Left-Turn	13.3 (B)	26.3 (C)
				Thru	34.9 (C)	9.7 (A)
				Thru/Rt	9.5 (A)	7.7 (A)
			7th St. WB	Left-Turn	14.3 (B)	12.1 (B)
				Thru	9.7 (A)	11.3 (B)
				Thru/Rt	9.7 (A)	11.3 (B)
			Houston Ave. NB	Thru/Lt	14.0 (B)	16.8 (B)
				Thru/Rt	14.0 (B)	16.8 (B)
			Houston Ave. SB	Thru/Lt	15.0 (B)	16.6 (B)
				Thru	15.0 (B)	16.6 (B)
				Right-Turn	12.1 (B)	13.6 (B)
7th St. & Lawton Ave.	21.2 (C)	20.3 (C)	7th St. EB	Left-Turn	17.9 (B)	18.7 (B)
				Thru	25.8 (C)	21.4 (C)
				Thru/Rt	25.7 (C)	21.4 (C)
			7th St. WB	Left-Turn	23.2 (C)	16.6 (B)
				Thru	26.5 (C)	25.8 (C)
				Thru/Rt	26.5 (C)	25.8 (C)
			Lawton Ave. NB	Thru/Lt	12.2 (B)	11.1 (B)
				Thru	12.3 (B)	11.2 (B)
			Lawton Ave. SB	Thru/Lt	11.7 (B)	11.5 (B)
				Thru/Rt	11.7 (B)	11.6 (B)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	19.8 (C)	18.8 (C)
				Thru/Rt	10.1 (B)	9.6 (A)
			Site Drive 5 WB	Left-Turn	0.0 (A)	22.7 (C)
				Thru/Rt	0.0 (A)	16.9 (C)
			Houston Ave. NB	Left-Turn	8.9 (A)	8.1 (A)
				Thru	8.9 (A)	8.1 (A)
				Thru/Rt	8.9 (A)	8.1 (A)
			Houston Ave. SB	Left-Turn	10.1 (B)	11.6 (B)
				Thru	0.0 (A)	11.6 (B)
				Thru/Rt	0.0 (A)	11.6 (B)
7th St. & External Dr.	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			7th St. WB	Thru/Lt	11.4 (B)	8.4 (A)
				Thru	0.4 (A)	0.1 (A)
			External Dr. NB	Left-Turn	36.7 (E)	22.7 (C)
				Right-Turn	12.7 (B)	10.2 (B)
7th St. & Site Drive 1	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
			7th St. WB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Site Drive 1 SB	Right-Turn	8.8 (A)	11.2 (B)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	8.5 (A)	10.8 (B)
				Thru	13.5 (B)	10.8 (B)
			Site Drive 6 WB	Lt/Rt	0.0 (A)	0.0 (A)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Right-Turn	10.0 (B)	9.8 (A)
			Houston Ave. NB	Thru	0.0 (A)	0.0 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
7th St. & Site Drive 2	N/A	N/A	7th St. EB	Thru	0.0 (A)	0.0 (A)
			7th St. WB	Thru	0.0 (A)	0.0 (A)
			7th St. NB	Thru	0.0 (A)	0.0 (A)
			Site Drive 2	Right-Turn	8.8 (A)	10.4 (B)

Figure 6:
2030 Base Conditions Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



5 SITE CHARACTERISTICS

To determine street network operations and development impacts, trips associated with the VA Hospital were generated and applied to the study network. Later in the study (**Section 7**), additional trips associated with the OSU CHS MH Hospital were generated and applied to the study network. The recommended transportation network improvements to serve the VA Hospital alone are the same as those recommended for the combined VA Hospital and OSU CHS MH Hospital scenario.

This study assumes one new drive connecting to Lawton Ave., but the drive will be restricted for use as a loading dock and trash collection area. The existing Site Drive 4 access is proposed to provide full-movement access to Houston Avenue and will be located 280 feet north of 7th Street. The site layout used for this traffic study is based on a proposed site layout as provided by the site design team in March 2022 – which depicted the two drive changes noted above. Existing access points at Lawton Ave., Houston Ave., and 7th St. will be improved as needed.

Houston Avenue and 3rd Street

After a review of the field conditions and the existing geometry at this location relative to the anticipated site trips to be added through this intersection, no significant improvements are recommended at this time. Signal timing adjustments are recommended, to the extent that they can be implemented without unduly affecting existing corridor or network signal timing plans in place for this area.

Houston Avenue and 7th Street

No improvements are recommended to this intersection except for signal timing adjustments as appropriate.

7th Street and Lawton Avenue

For overall traffic flow in the area, the northbound channelized right-turn lane should be modified to be controlled with the intersection traffic signal. The existing yield condition on the downstream end of the channelized right-turn lane could become a safety issue as traffic increases in this area. In addition, some signal timing adjustments should be considered to the extent that they can be implemented without unduly affecting existing corridor or network signal timing plans in place for this area.

Houston Avenue and Site Drive 5

Given that the drive at this location will be the primary access drive for the facility overall with the most direct access to and from the proposed parking garage, the following recommendations are provided regarding the intersection:

- Provide a 260’ long left-turn lane separate from the through/right lane in the eastbound direction. The critical 95th percentile queue length for the eastbound left-turn lane is nearly 200 feet. The recommended turn-lane length (260’) will accommodate the queues and facilitate accessibility from the primary access road and the parking garage exit points.
- The existing 210’ long southbound left-turn lane and 130’ long northbound left-turn lane should be adequate for Houston Ave.
- After checking traffic operations and based on the volume of site-generated traffic expected to be utilizing this drive, this intersection should be able to remain as a two-way stop-controlled intersection with the addition of Tulsa VA Hospital traffic. With additional growth in the downtown area (or if development within the study boundary itself generates significantly more traffic than the levels the study assumptions are based on), this intersection may warrant a signal at some point in the future. Based on the assumptions utilized to define base + site-generated traffic in this traffic study, signal warrants are not expected to be met until sometime after 2030.
- No landscaping taller than two feet in height shall be allowed within the effective sight triangles of vehicles stopped on the site drive approach.

Houston Avenue and Site Drive 4

- Remove a portion of the raised center median to allow all turning movements at this intersection. Provide a 150’ long left-turn lane in the northbound direction for storage.
- The intersection shall be operated as a two-way, stop-controlled intersection with a stop sign on the site drive approach. The site drive will be located 280 feet north of 7th Street and 255 feet south of Site Drive 5.
- No landscaping taller than two feet in height shall be allowed within the effective sight triangles of vehicles stopped on the site drive approach.

In addition to the improvements noted above, Site Drive 7 will be added to serve the new facility but restricted for use as a loading dock only. This new restricted-use site drive will be located 130 feet north of 7th Street. The ambulance entrance/exit drive is located just west of Site Drive 3 on 7th Street, near the previous location of Site Drive 2. This restricted-use drive is located 325 feet east of Lawton Avenue and 100 feet west of Site Drive 3.

Site Drive 3, accessing 7th St., is recommended to align with the existing external driveway cut to the south with all movements allowed at this intersection. The northbound and southbound drive approaches will be stop-controlled with 7th St. allowed to flow freely. This full-movement drive is located 100 feet east of the new ambulance lot drive and 275 feet west of the Houston Avenue intersection.

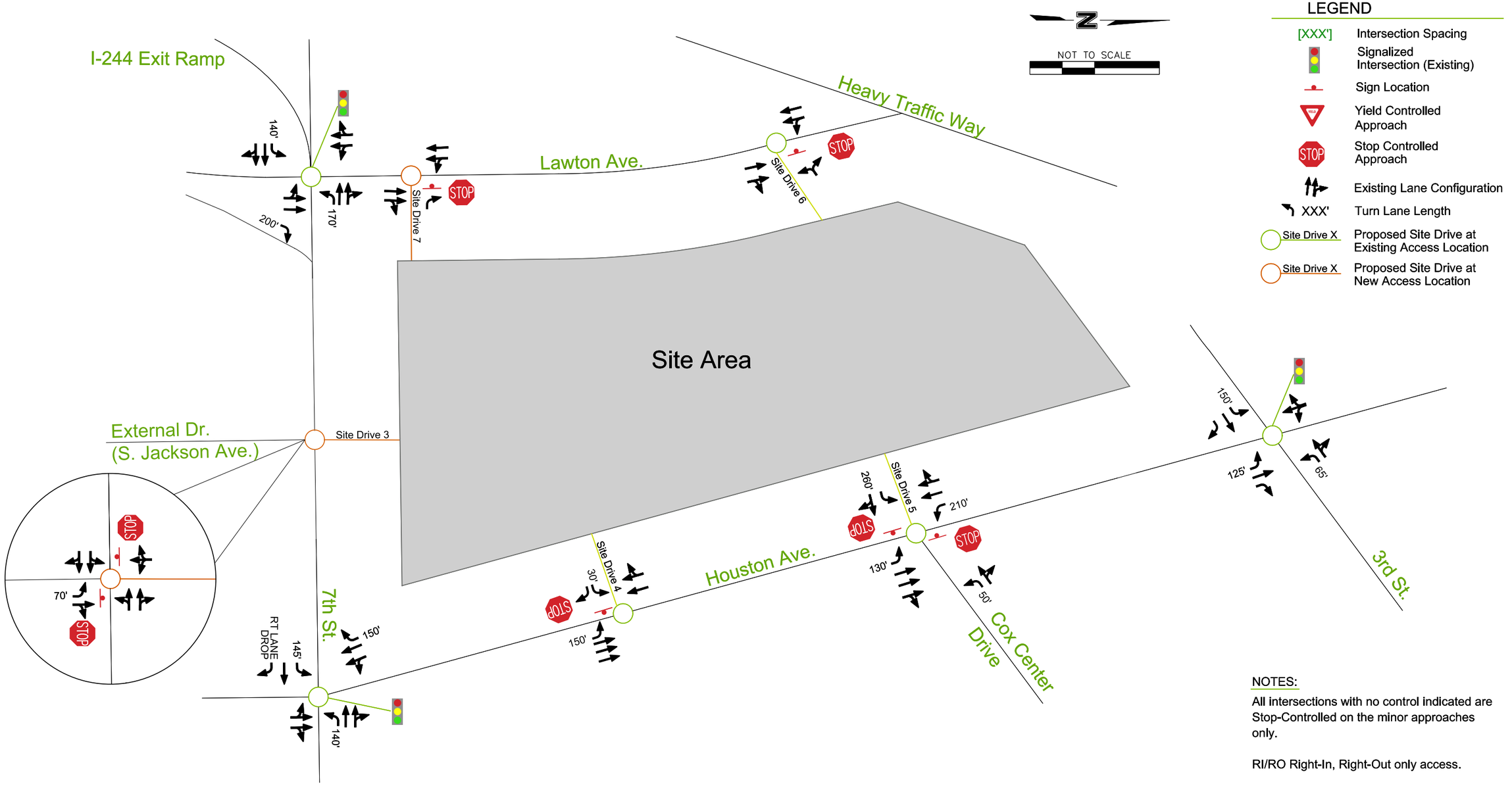
The site plan used for this study is provided in **Figure 7**. Proposed lane configuration and traffic control are shown in **Figure 8**.

Figure 7:
Preliminary Site Plan

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

Figure 8:
Proposed Lane Configurations and Traffic Control

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



NOTES:

All intersections with no control indicated are Stop-Controlled on the minor approaches only.

RI/RO Right-In, Right-Out only access.

5.1 Trip Generation

To determine the impact of potential site traffic on the roadway network, estimated trips associated with the proposed site were generated and applied to the study network. The Institute of Transportation Engineers (ITE) provides methods for estimated traffic volumes of common land uses in the *ITE Trip Generation Manual (11th Edition)*. For trip generation purposes, this analysis was divided into two sections, these include: (1) the VA Hospital and VA Hospital Administration area; and (2) the OSU CHS MH Hospital. The land use that best applies for these two uses is listed as follows by Land Use Code (LUC):

- LUC 610, Hospital — VA Hospital
- LUC 610, Hospital — OSU CHS MH Hospital

The trip generation and traffic analysis was divided into two sections because the VA Hospital is anticipated to be constructed prior to the OSU CHS MH Hospital.

The *Trip Generation Manual* utilizes a wealth of trip generation data for similar sites organized by land use categories and independent variables that correlate with a number of trips entering and/or exiting the facility. Based on information provided by the VA Hospital planner in February 2022, the VA Hospital is expected to average 609 employees in an average weekday. For LUC 610, the number of average daily employees is the preferred independent variable because it provides a larger sample size than the other independent variables. The projected patient population is 300 based on information provided by the facility planner. For the purposes of trip generation, the number of vehicular trips generated by the facility associated with patient activity are included in the estimated trips based on the total daily employee population. Additional ancillary sources of trip generation, including but not limited to food and beverage deliveries, medical supply deliveries, and hospital visitors, are also included in the trip estimates as provided.

Based on information provided in February 2022, the OSU CHS MH Hospital is expected to average 317 employees per day on a typical weekday.

The proposed VA Hospital site is expected to generate 2,297 daily, 190 AM peak hour, and 202 PM peak hour trips (or trip ends).

The proposed VA Hospital plus OSU CHS MH Hospital site is expected to generate 3,493 daily, 289 AM peak hour, and 307 PM peak hour trips (or trip ends).

A summary of the estimated daily, AM peak hour, and PM peak hour site trips is shown in **Table 5** for the VA Hospital and Administration Building and **Table 6** for the OSU CHS MH Hospital.

Table 5
ITE TRIP GENERATION
Proposed Tulsa VA Hospital Traffic Study

Tulsa, OK

VA Hospital
Daily Trip Generation

ITE Code	Land Use	Description	Size		Trip Gen. Avg. Rate/Eq.*	Daily Trips	Trip Distribution Enter	Trip Distribution Exit	Total Daily Trips Enter	Total Daily Trips Exit
610	Hospital	VA Hospital	609	Employees	3.77	2,297	50%	50%	1,149	1,148
Total						2,297			1,149	1,148

AM Peak Hour Trips

ITE Code	Land Use		Size		Trip Gen. Avg. Rate/Eq.*	AM Peak Trips	Trip Distribution Enter	Trip Distribution Exit	Total AM Trips Enter	Total AM Trips Exit
610	Hospital	VA Hospital	609	Employees	0.31	190	70%	30%	133	57
Total						190			133	57

PM Peak Hour Trips

ITE Code	Land Use		Size		Trip Gen. Avg. Rate/Eq.*	PM Peak Peak Trips	Trip Distribution Enter	Trip Distribution Exit	Total PM Trips Enter	Total PM Trips Exit
610	Hospital	VA Hospital	609	Employees	0.33	202	34%	66%	68	134
Total						202			68	134

*Based on the average rate for Land Use Category 610 (Hospital) from *ITE Trip Generation Manual, 11th Edition*.

Table 6
ITE TRIP GENERATION
Proposed Tulsa VA Hospital Traffic Study

Tulsa, OK

OSU CHS Mental Health Hospital
Daily Trip Generation

ITE Code	Land Use	Description	Size		Trip Gen. Avg. Rate/Eq.*	Daily Trips	Trip Distribution Enter	Trip Distribution Exit	Total Daily Trips Enter	Total Daily Trips Exit
610	Hospital	OSU Mental Health Hospital	317	Employees	3.77	1,196	50%	50%	598	598
Total						1,196			598	598

AM Peak Hour Trips

ITE Code	Land Use	Description	Size		Trip Gen. Avg. Rate/Eq.*	AM Peak Trips	Trip Distribution Enter	Trip Distribution Exit	Total AM Trips Enter	Total AM Trips Exit
610	Hospital	OSU Mental Health Hospital	317	Employees	0.31	99	70%	30%	69	30
Total						99			69	30

PM Peak Hour Trips

ITE Code	Land Use	Description	Size		Trip Gen. Avg. Rate/Eq.*	PM Peak Peak Trips	Trip Distribution Enter	Trip Distribution Exit	Total PM Trips Enter	Total PM Trips Exit
610	Hospital	OSU Mental Health Hospital	317	Employees	0.33	105	34%	66%	36	69
Total						105			36	69

*Based on the average rate for Land Use Category 610 (Hospital) from *ITE Trip Generation Manual, 11th Edition*.

5.2 Trip Distribution

The trip distribution was developed based on existing and future traffic volumes, trip patterns, and land use characteristics. It is expected that site trips will originate locally and from the larger region, with about 75% being better classified as longer-distance trips utilizing one or more interstate or freeway facilities. Downtown Tulsa's core area is located northeast of the site approximately one mile. I-244 is located west of the site and is expected to be the highest origin-destination route for the site traffic. I-444 to the south accessed via Houston Ave. is also anticipated to be used heavily by site-bound vehicles.

Ultimately, primary site trips were distributed until they extended outside of the study boundary and are generally classified as long-distance trips and short-distance trips as follows:

- Long Distance Trips (75% of the total trips):
    - 35% to/from the west/north/east via I-244/US-412/US-75
    - 25% to/from the east/south/north via I-444/US-64/US-75
    - 15% to/from the southwest via I-244/I-44
- Short-Distance Trips (25% of the total trips):
    - 5.5% to/from the south on Houston Ave.
    - 5% to/from the north on Heavy Traffic Way
    - 5% to/from the east on 3rd St.
    - 4% to/from the east on 7th and 6th St.
    - 4% to/from the west on 3rd St.
    - 1.5% to/from the south on Lawton Ave.

The trip distributions for the VA Hospital site-generated traffic are illustrated in **Figure 9A** with the percentage of overall site-generated trips provided to/from each major street/highway. The site-generated trips for the VA Hospital facility through the study boundary area (at full build-out) are illustrated in **Figure 9B**.

5.3 Daily Traffic Impacts

Based on current AADTs available on the ODOT AADT Traffic Counts Site, the 2021 daily traffic volume is 6,100 vpd on Houston Avenue, 5,100 vpd on 7th Street, 2,500 on Lawton Avenue, and 4,800 vpd on 3rd Street. The proposed VA Hospital development is anticipated to add 1,118 vpd to Houston Avenue, 390 vpd to 7th Street, 30 or fewer trips on Lawton Avenue, and 92 trips on 3rd Street. The percent increase in daily traffic being added to Houston Avenue is calculated at 18.3%. The percent increase in daily traffic being added to 7th Street is calculated at 7.6%. The percent increase in daily traffic being added to Lawton Avenue is calculated at 1.2%. The percent increase in daily traffic being added to 3rd Street is calculated at 2.0%.

5.4 Parking Generation

ITE's *Parking Generation Manual* (*5th Edition*) was used to determine the amount of parking appropriate for the VA Hospital facility and the combined VA Hospital plus OSU CHS MH Hospital scenario. The *Parking Generation Manual* data is based on parking studies for various land uses and is summarized and presented in a manner similar to the *Trip Generation Manual*. LUC 610 (Hospital) was utilized for both scenarios with the number of employees as the independent variable. For the VA Hospital, the peak period parking demand is estimated to be 445. The additional parking demand generated by the OSU CHS MH Hospital is estimated at 232, for a total parking demand of 677 for the VA Hospital plus OSU CHS MH Hospital facility. The peak parking demand is anticipated to occur sometime between 9:00 am to 4:00 pm.

Figure 9A:
Primary Site-Generated Trips - Overall

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

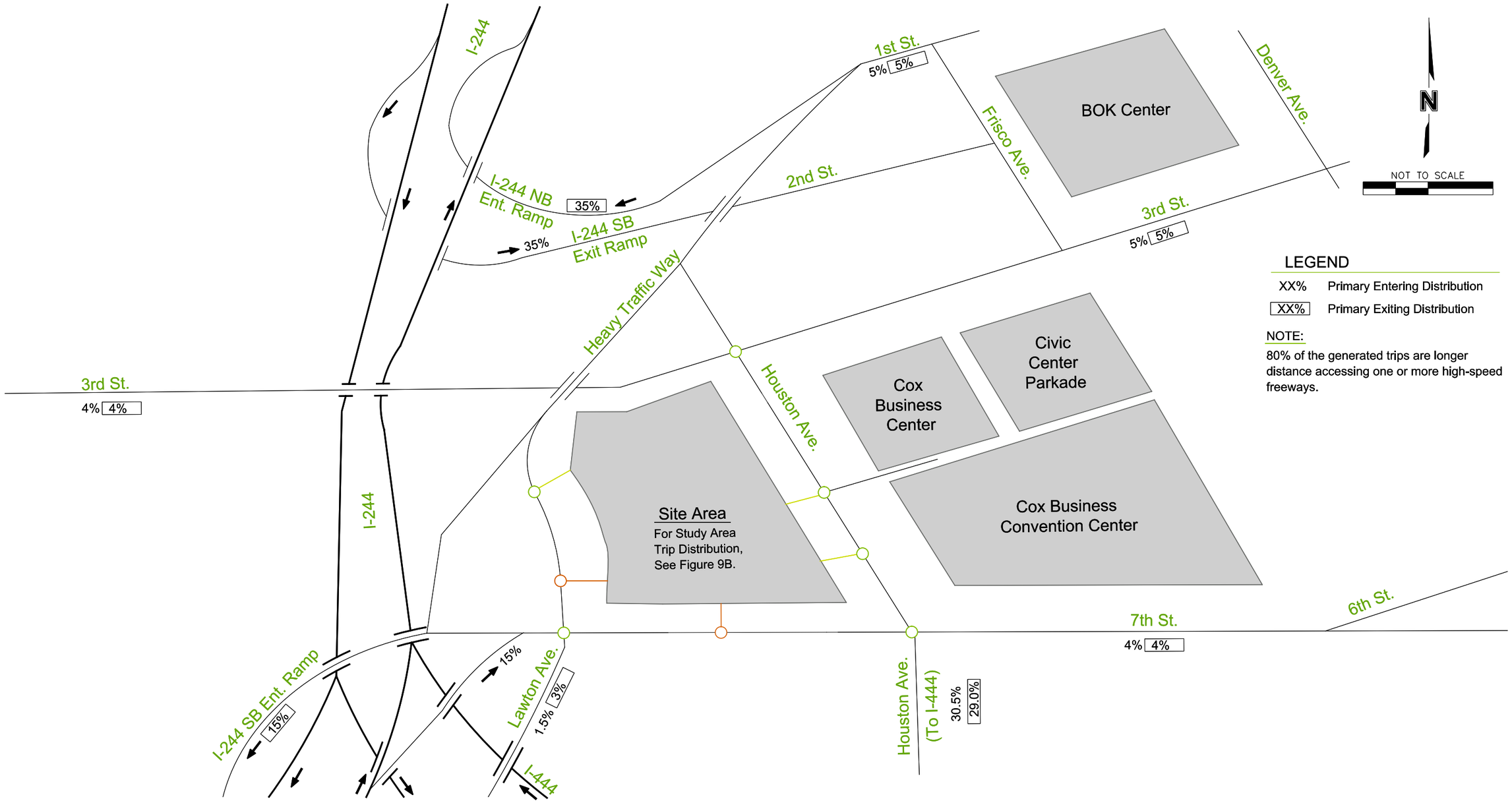
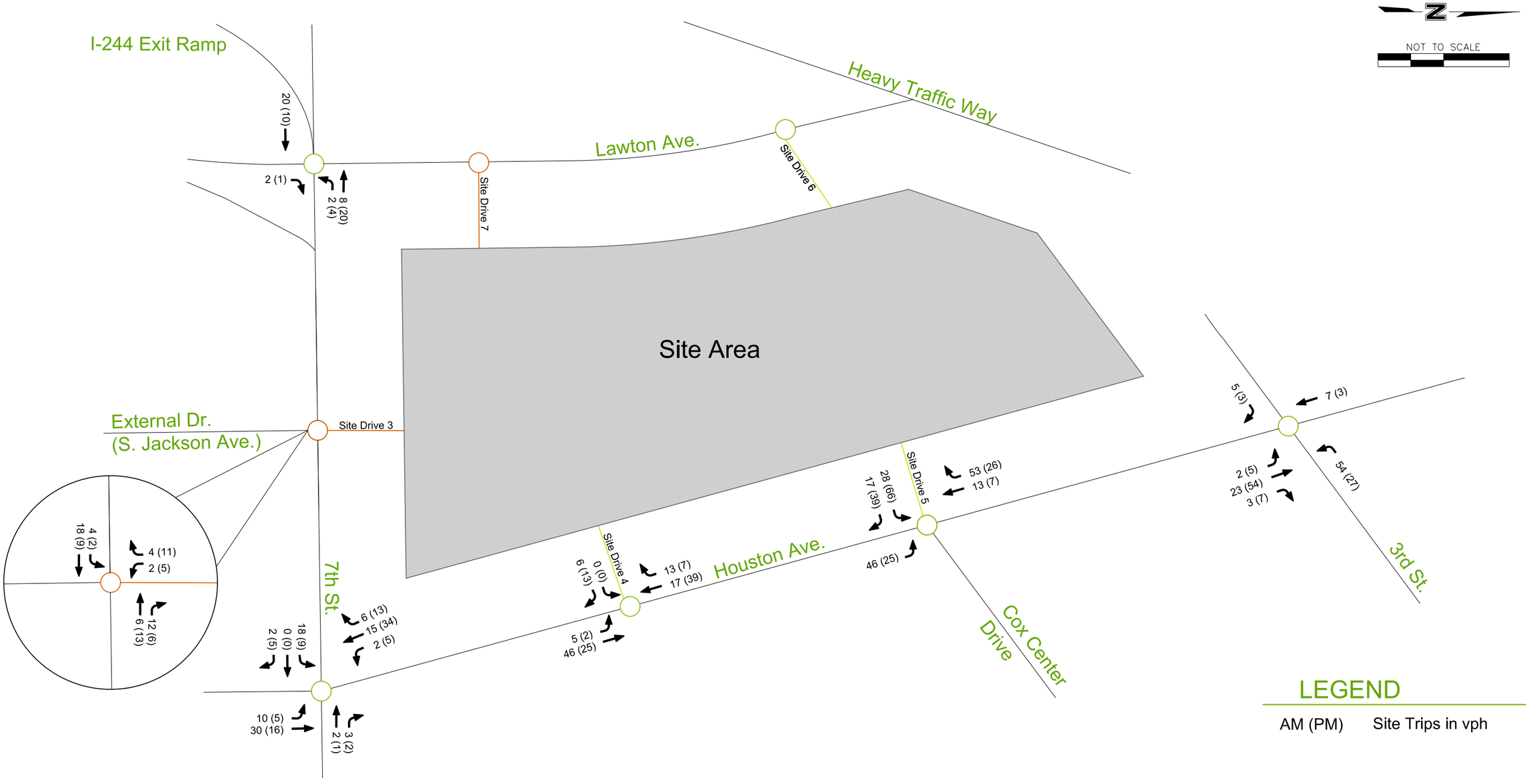


Figure 9B:
Primary VA Hospital - Generated Trips - Study Area

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



6 BASE PLUS VA HOSPITAL TRAFFIC ANALYSIS

The traffic volumes generated by the VA Hospital project were combined with the 2021 base volumes to represent the 2021 Base plus VA Hospital traffic conditions for the AM and PM peak hours. 2021 base plus VA Hospital peak hour volumes for the overall study area are shown in **Figure 10.**

6.1 2021 Base plus VA Hospital Traffic Capacity Analysis

Capacity analysis for 2021 base plus VA Hospital-generated traffic on the improved network was conducted to analyze expected operations to compare with the 2021 base traffic on existing network. Improvements that were incorporated into the improved conditions scenario include turn lane improvements at Houston Ave. and Site Drive 5, new Site Drive 7, modifications to Site Drives 3, 4, and 6, and the removal of Site Drives 1 and 2.

Results of the 2021 base plus VA Hospital-generated traffic operations analyses are summarized by intersection and lane group in **Table 7**. The weighted average delay for the signalized intersections resulted in 19.6 seconds (LOS B) in the AM Peak, and 17.2 seconds (LOS B) in the PM Peak.

As compared with base 2021 conditions, all three signalized intersection delay was limited to an increase of 3.0 seconds or less, indicating negligible differences to the overall operations drivers can expect between the two scenarios.

Results of the 2021 base plus VA Hospital-generated traffic operations analyses indicate additional average vehicular delays in the range of 3.0 to 10.0 seconds at the following intersection approach lane groups. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2021 base LOS preceding the 2021 base plus VA Hospital generated values):

- Houston Ave. & Site Drive 5
    - Eastbound Left: AM Peak: 4.7 s (C → C); PM Peak: 5.9 s (C → C)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
    - Northbound Left: AM Peak: 4.5 s (C → D); PM Peak: 8.8 s (C → D)
    - Eastbound Thru/Left: AM Peak: 7.5 s (A → A); PM Peak: 8.7 s (A → A)
- Site Drive 4 Stop-Controlled Houston Ave.
    - Northbound Thru: AM Peak: 8.5 s (A → A); PM Peak: 8.1 s (A → A)

Results of the 2021 base plus VA Hospital-generated traffic operations analyses indicated no additional average vehicular delays greater than 10.0 seconds for the following lane groups.

Figure 10:
2021 Base + VA Hospital Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

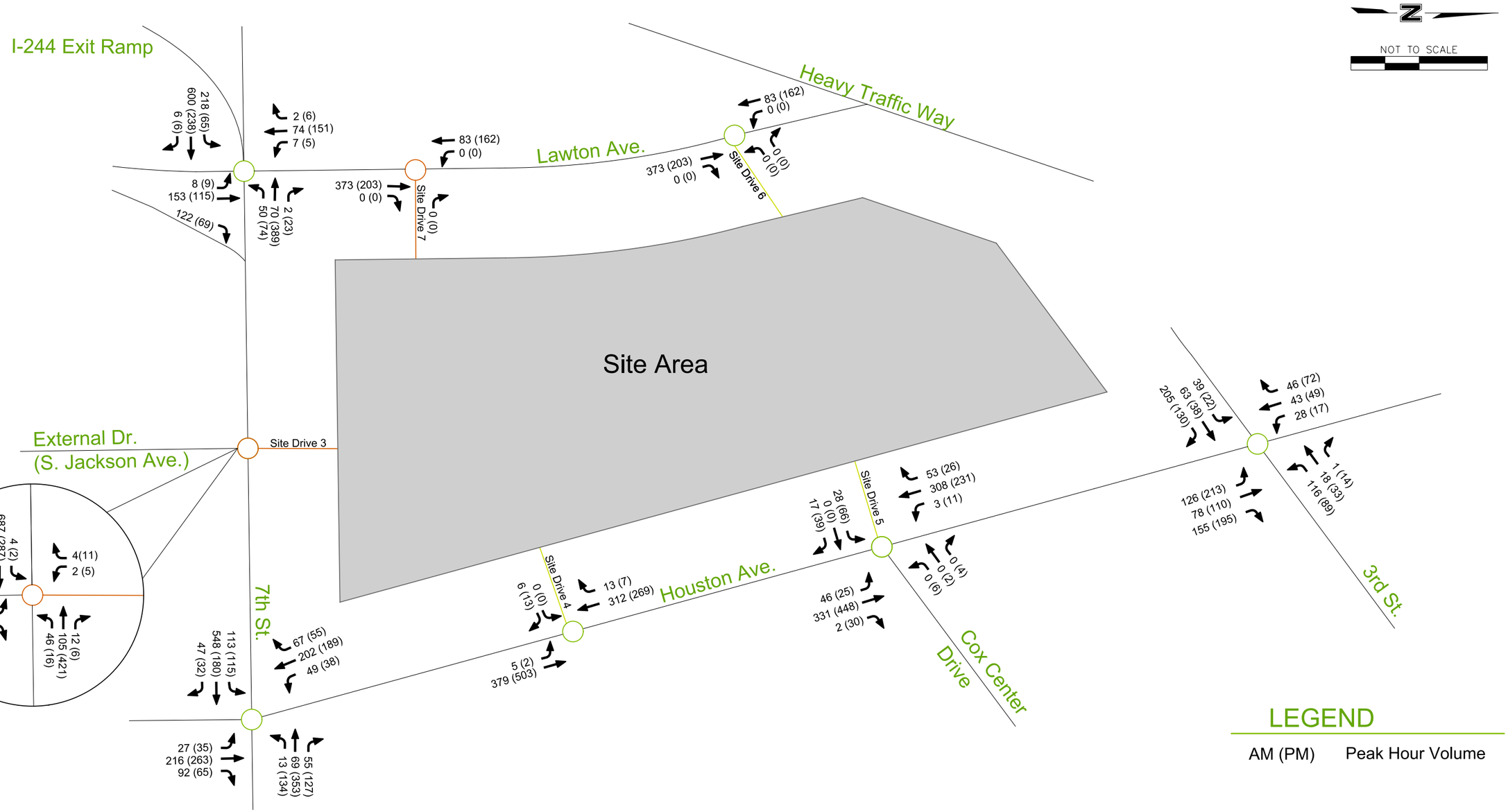


Table 7. 2021 Base + VA Hospital Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	21.2 (C)	15.4 (B)	3rd St. EB	Left-Turn	20.4 (C)	24.6 (C)
				Thru	24.0 (C)	26.7 (C)
				Right-Turn	34.7 (C)	33.6 (C)
			3rd St. WB	Left-Turn	18.6 (B)	21.1 (C)
				Thru/Rt	20.8 (C)	23.1 (C)
			Houston Ave. NB	Left-Turn	12.5 (B)	8.6 (A)
				Thru	11.2 (B)	7.2 (A)
				Right-Turn	13.0 (B)	9.4 (A)
			Houston Ave. SB	Lt/Thru/Rt	18.5 (C)	14.2 (B)
Houston Ave. & 7th St.	15.6 (B)	12.7 (B)	7th St. EB	Left-Turn	12.4 (B)	16.0 (B)
				Thru	21.5 (C)	9.3 (A)
				Right-Turn	9.3 (A)	7.7 (A)
			7th St. WB	Left-Turn	10.6 (B)	10.7 (B)
				Thru	9.6 (A)	10.4 (B)
				Thru/Rt	9.6 (A)	10.4 (B)
			Houston Ave. NB	Thru/Lt	13.6 (B)	16.2 (B)
				Thru/Rt	13.6 (B)	16.2 (B)
			Houston Ave. SB	Thru/Lt	14.3 (B)	15.8 (B)
				Thru	14.3 (B)	15.8 (B)
				Right-Turn	11.9 (B)	13.7 (B)
7th St. & Lawton Ave.	20.1 (C)	19.4 (B)	7th St. EB	Left-Turn	18.0 (B)	19.3 (B)
				Thru	26.0 (C)	22.6 (C)
				Thru/Rt	25.9 (C)	22.6 (C)
			7th St. WB	Left-Turn	22.4 (C)	17.5 (B)
				Thru	25.6 (C)	25.6 (C)
				Thru/Rt	25.6 (C)	25.6 (C)
			Lawton Ave. NB	Thru/Lt	10.2 (B)	8.9 (A)
				Thru	10.3 (B)	9.0 (A)
				Right-Turn	10.9 (B)	9.1 (A)
			Lawton Ave. SB	Thru/Lt	9.8 (A)	9.1 (A)
				Thru/Rt	9.8 (A)	9.2 (A)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	21.2 (C)	21.4 (C)
				Thru/Rt	10.2 (B)	9.7 (A)
			Site Drive 5 WB	Left-Turn	0.0 (A)	19.8 (C)
				Thru/Rt	0.0 (A)	14.7 (B)
			Houston Ave. NB	Left-Turn	8.7 (A)	8.1 (A)
				Thru	8.7 (A)	8.1 (A)
				Thru/Rt	8.7 (A)	8.1 (A)
			Houston Ave. SB	Left-Turn	9.7 (A)	10.8 (B)
				Thru	9.7 (A)	10.8 (B)
				Thru/Rt	9.7 (A)	10.8 (B)
7th St., Site Drive 3, & External Dr.	N/A	N/A	7th St. EB	Thru/Lt	7.5 (A)	8.7 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			7th St. WB	Thru/Lt	9.9 (A)	8.6 (A)
				Thru/Rt	0.2 (A)	0.1 (A)
			External Dr. NB	Left-Turn	29.1 (D)	26.1 (D)
				Thru/Rt	11.3 (B)	10.3 (B)
			Site Drive 3 SB	Lt/Thru/Rt	11.8 (B)	14.4 (B)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
			Site Drive 6 WB	Lt/Rt	0.0 (A)	0.0 (A)
Lawton Ave. & Site Drive 7	N/A	N/A	Site Drive 7 WB	Right-Turn	0.0 (A)	0.0 (A)
			Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Left-Turn	0.0 (A)	0.0 (A)
				Right-Turn	9.9 (A)	9.5 (A)
			Houston Ave. NB	Left-Turn	8.5 (A)	8.1 (A)
				Thru	8.5 (A)	8.1 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)

Figure 11 illustrates the 2021 base plus site traffic on the proposed network capacity analysis summary for the overall study area. As compared with the 2021 base traffic analysis, additional traffic delays can be anticipated with the increase in traffic related to the new VA hospital facility, but the network is expected to operate similarly to what it does for 2021 base traffic conditions (see **Section 3.2**). Detailed results may be found in **Appendix C**.

6.2 2030 Base plus VA Hospital Traffic Capacity Analysis

The traffic volumes generated by the VA Hospital project were combined with the 2030 base volumes to represent the 2030 Base plus VA Hospital traffic conditions for the AM and PM peak hours. 2030 base plus VA Hospital peak hour volumes for the overall study area are shown in **Figure 12.**

Capacity analysis for 2030 base plus VA Hospital generated traffic on the improved network was conducted to analyze expected operations to compare with the 2030 base traffic on existing network.

Results of the 2030 base plus VA Hospital generated traffic operations analyses are summarized by intersection and lane group in **Table 8**. The weighted average delay for the signalized intersections resulted in 27.1 seconds (LOS C) in the AM Peak and 22.2 seconds (LOS C) in the PM Peak.

As compared with base 2030 conditions, the signalized intersections delay was limited to an increase of 3.0 seconds or less, indicating negligible differences to the overall operations drivers can expect between the two scenarios.

Results by lane group for the 2030 base plus VA Hospital generated traffic operations analyses indicate additional average vehicular delays in the range of 3.0 to 10.0 seconds at the following intersection approach lane groups. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2030 base LOS preceding the 2030 base plus VA Hospital generated values):

- Houston Ave. & 7th St. Signal
  - Eastbound Left: PM Peak: 3.1 s (C → C)
- Houston Ave. & Site Drive 5
  - Eastbound Left: AM Peak: 6.5 s (C → D); PM Peak: 9.8 s (C → D)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
  - Northbound Left: AM Peak: 8.4 s (E → E)
  - Eastbound Thru/Left: AM Peak: 7.6 s (A → A)
- Site Drive 4 Stop-Controlled Houston Ave.
  - Northbound Thru: AM Peak: 8.7 s (A → A); PM Peak: 8.2 s (A → A)

Results of the 2030 base plus VA Hospital-generated traffic operations analyses indicate additional average vehicular delays greater than 10.0 seconds for the following lane groups. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2030 base LOS preceding the 2030 base plus VA Hospital generated values):

- Houston Ave. & Site Drive 5
    - Southbound Thru: AM Peak: 10.1 s (A → B)
    - Southbound Thru/Rt: AM Peak: 10.1 s (A → B)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
    - Northbound Left: PM Peak: 20.3 s (C → E)

Figure 13 illustrates the 2030 base plus site traffic on the proposed network capacity analysis summary for the overall study area. As compared with the 2030 base traffic analysis, additional traffic delays can be anticipated with the increase in traffic related to the new VA hospital facility, but the network is expected to operate similarly to what it does for 2021 base traffic conditions (see **Section 4.2**). Detailed results may be found in **Appendix C**.

Figure 11:
2021 Base + VA Hospital Traffic on Proposed Network Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

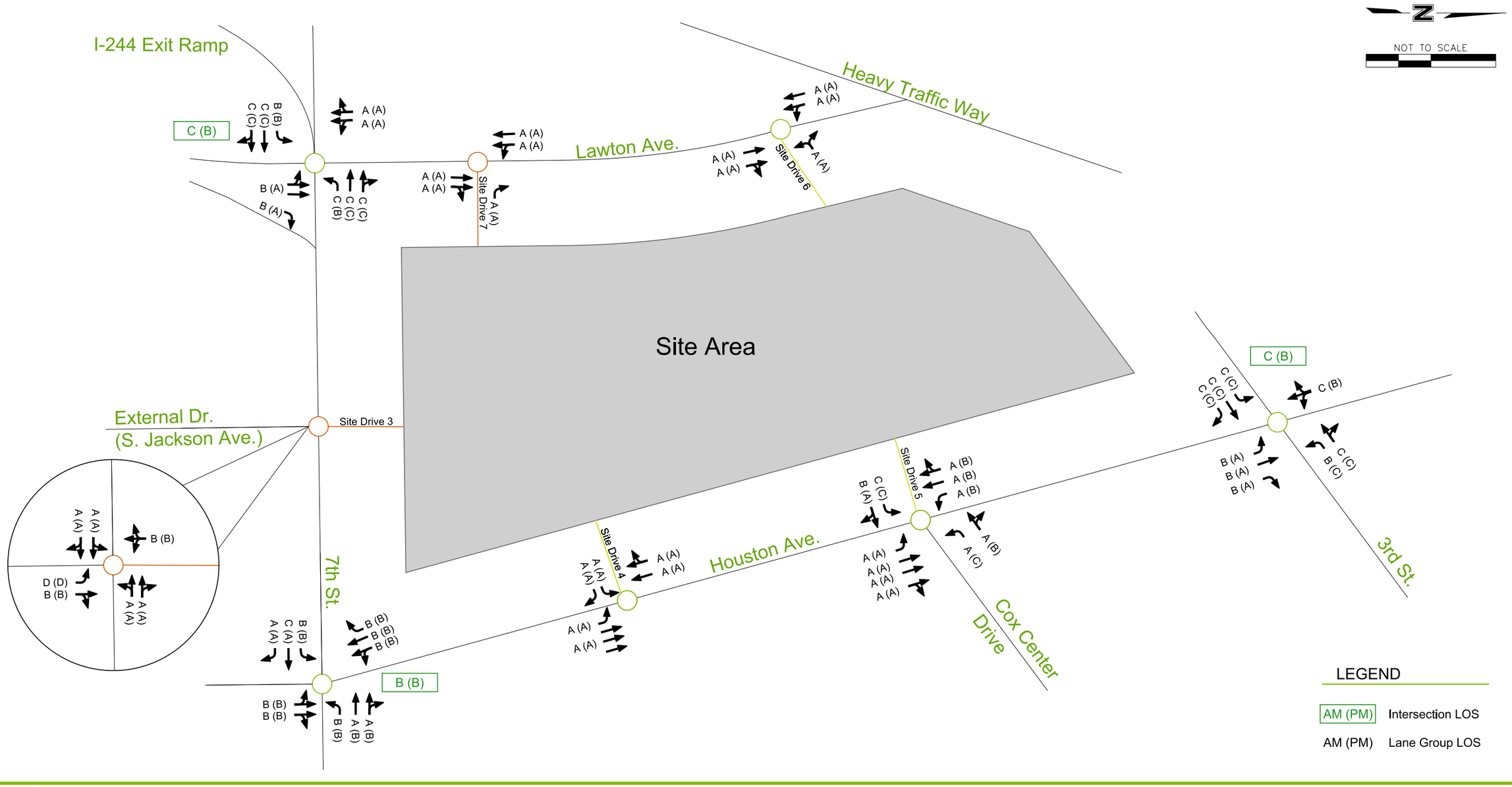


Figure 12:
2030 Base + VA Hospital Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

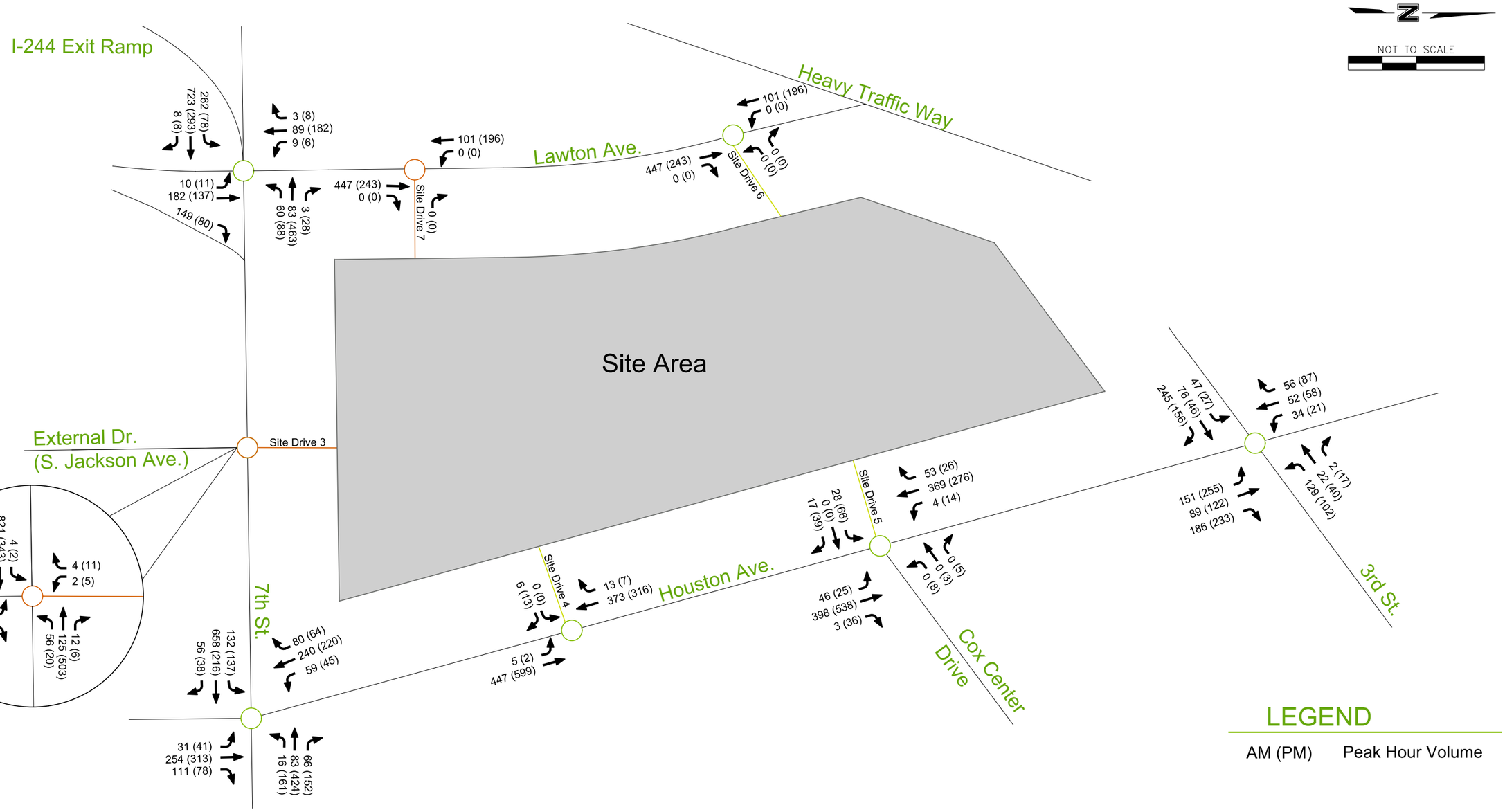


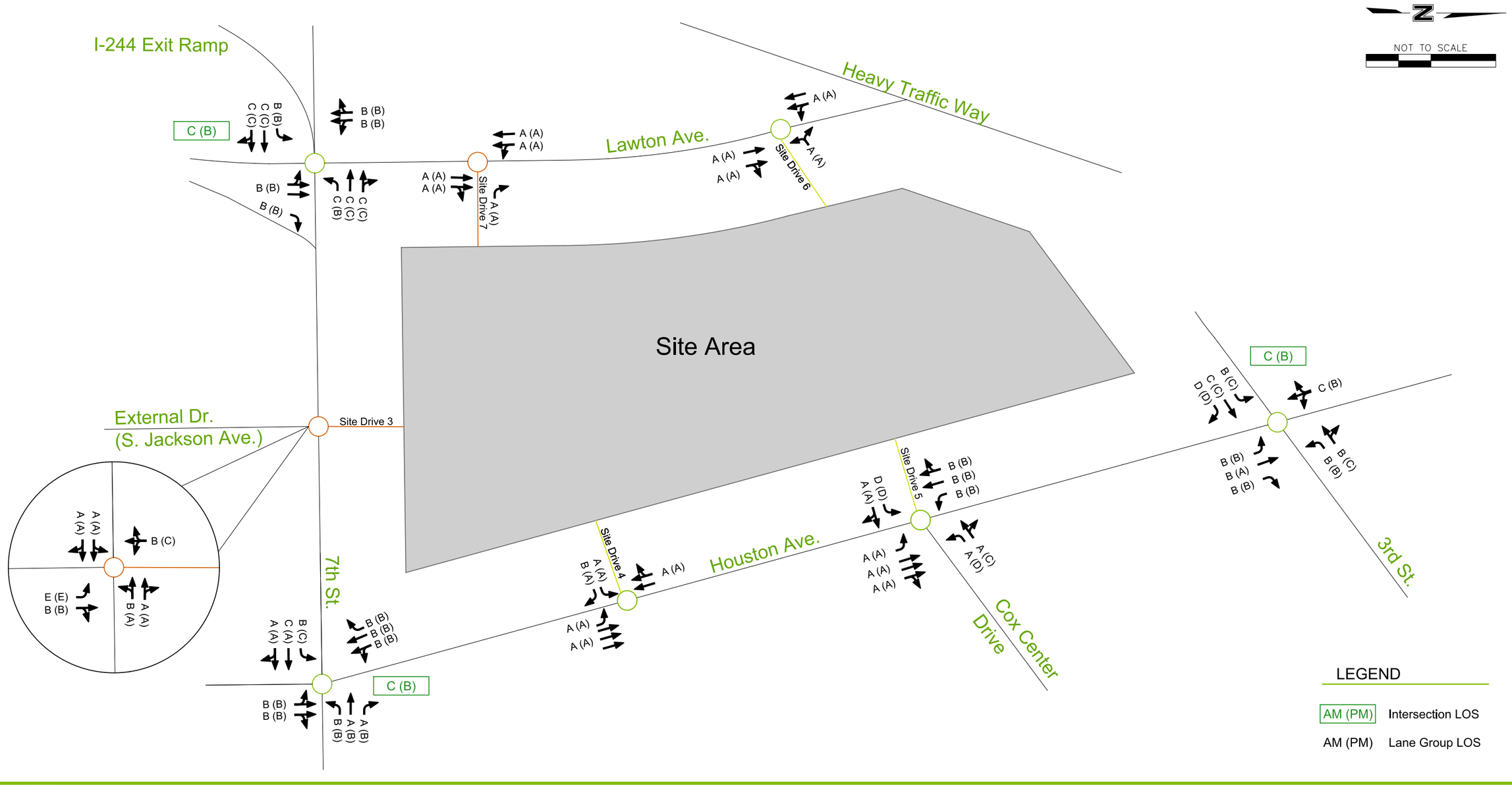
Table 8. 2030 Base + VA Hospital Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	23.8 (C)	17.0 (B)	3rd St. EB	Left-Turn	19.4 (B)	24.4 (C)
				Thru	23.3 (C)	26.8 (C)
				Right-Turn	38.9 (D)	35.2 (C)
			3rd St. WB	Left-Turn	17.5 (B)	20.7 (B)
				Thru/Rt	19.8 (B)	22.8 (C)
			Houston Ave. NB	Left-Turn	15.6 (B)	10.1 (B)
				Thru	13.8 (B)	8.3 (A)
				Right-Turn	16.7 (B)	11.7 (B)
			Houston Ave. SB	Lt/Thru/Rt	23.6 (C)	17.5 (B)
Houston Ave. & 7th St.	20.3 (C)	14.4 (B)	7th St. EB	Left-Turn	13.4 (B)	30.1 (C)
				Thru	34.9 (C)	9.7 (A)
				Right-Turn	9.5 (A)	7.7 (A)
			7th St. WB	Left-Turn	14.3 (B)	12.1 (B)
				Thru	9.7 (A)	11.3 (B)
				Thru/Rt	9.7 (A)	11.3 (B)
			Houston Ave. NB	Thru/Lt	14.2 (B)	17.1 (B)
				Thru/Rt	14.2 (B)	17.1 (B)
			Houston Ave. SB	Thru/Lt	15.3 (B)	16.6 (B)
				Thru	15.3 (B)	16.6 (B)
				Right-Turn	12.1 (B)	13.7 (B)
7th St. & Lawton Ave.	20.7 (C)	19.9 (B)	7th St. EB	Left-Turn	17.7 (B)	18.8 (B)
				Thru	26.0 (C)	21.8 (C)
				Thru/Rt	25.9 (C)	21.8 (C)
			7th St. WB	Left-Turn	23.2 (C)	16.7 (B)
				Thru	26.2 (C)	25.8 (C)
				Thru/Rt	26.3 (C)	25.8 (C)
			Lawton Ave. NB	Thru/Lt	12.6 (B)	11.1 (B)
				Thru	12.7 (B)	11.2 (B)
				Right-Turn	13.8 (B)	11.4 (B)
			Lawton Ave. SB	Thru/Lt	12.1 (B)	11.4 (B)
				Thru/Rt	12.1 (B)	11.6 (B)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	26.3 (D)	28.6 (D)
				Thru/Rt	10.6 (B)	9.9 (A)
			Site Drive 5 WB	Left-Turn	0.0 (A)	25.2 (D)
				Thru/Rt	0.0 (A)	18.0 (C)
			Houston Ave. NB	Left-Turn	9.0 (A)	8.3 (A)
				Thru	9.0 (A)	8.3 (A)
				Thru/Rt	9.0 (A)	8.3 (A)
			Houston Ave. SB	Left-Turn	10.1 (B)	11.7 (B)
				Thru	10.1 (B)	11.7 (B)
				Thru/Rt	10.1 (B)	11.7 (B)
7th St., Site Drive 3, & External Dr.	N/A	N/A	7th St. EB	Thru/Lt	7.6 (A)	0.0 (A)
				Thru/Rt	0.1 (A)	0.0 (A)
			7th St. WB	Thru/Lt	11.0 (B)	9.0 (A)
				Thru/Rt	0.4 (A)	0.2 (A)
			External Dr. NB	Left-Turn	45.1 (E)	43.0 (E)
				Thru/Rt	12.3 (B)	11.0 (B)
			Site Drive 3 SB	Lt/Thru/Rt	13.3 (B)	17.0 (C)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
			Site Drive 6 WB	Lt/Rt	0.0 (A)	0.0 (A)
Lawton Ave. & Site Drive 7	N/A	N/A	Site Drive 8 WB	Right-Turn	0.0 (A)	0.0 (A)
			Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Left-Turn	0.0 (A)	0.0 (A)
				Right-Turn	10.3 (B)	9.7 (A)
			Houston Ave. NB	Left-Turn	8.7 (A)	8.2 (A)
				Thru	8.7 (A)	8.2 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)

Figure 13:

2030 Base + VA Hospital Traffic on Proposed Network Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



7 BASE PLUS VA HOSPITAL PLUS OSU CHS MH HOSPITAL TRAFFIC ANALYSIS

The trip distributions for the VA Hospital plus OSU CHS MH Hospital-generated traffic are illustrated in **Figure 9A** with the percentage of overall VA Hospital-generated trips provided to/from each major street/highway. The VA Hospital-generated trips for the VA Hospital facility plus the Mental Health Hospital through the study boundary area (at full build-out) are illustrated in **Figure 14**.

The traffic volumes generated by the VA Hospital plus Mental Health Facilities were combined with the 2021 base volumes to represent the 2021 Base plus VA Hospital plus OSU CHS MH Hospital traffic conditions for the AM and PM peak hours. 2021 base plus VA Hospital peak hour volumes for the overall study area are shown in **Figure 15.**

7.1 2021 Base plus VA Hospital plus OSU CHS MH Hospital Traffic Capacity Analysis

Capacity analysis for 2021 base plus VA Hospital-generated plus OSU CHS MH Hospital traffic on the improved network was conducted to analyze expected operations to compare with the 2021 base traffic on existing network. Improvements that were incorporated into the improved conditions scenario include turn lane improvements at Houston Ave. and Site Drive 5, new Site Drive 7, modifications to Site Drives 3, 4, and 6, and the removal of Site Drives 1 and 2 (the same improvements noted from **Section 6.1**).

Results of the 2021 base plus VA Hospital plus OSU CHS MH Hospital generated traffic operations analyses are summarized by intersection and lane group in **Table 9**. The weighted average delay at the signalized intersections resulted in 20.6 seconds (LOS C) in the AM Peak and 16.7 seconds (LOS B) in the PM Peak.

As compared with base 2021 conditions, the signalized intersections delay was limited to increases of 3.0 seconds or less, indicating negligible differences to the overall operations drivers can expect between the two scenarios.

Results of the 2021 base plus VA Hospital plus OSU CHS MH Hospital-generated traffic operations analyses indicate additional average vehicular delays in the range of 3.0 to 10.0 seconds at the following intersection approach lane groups. The additional delay (in seconds

Figure 14:
Primary OSU CHS MH Hospital - Generated Trips - Study Area

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

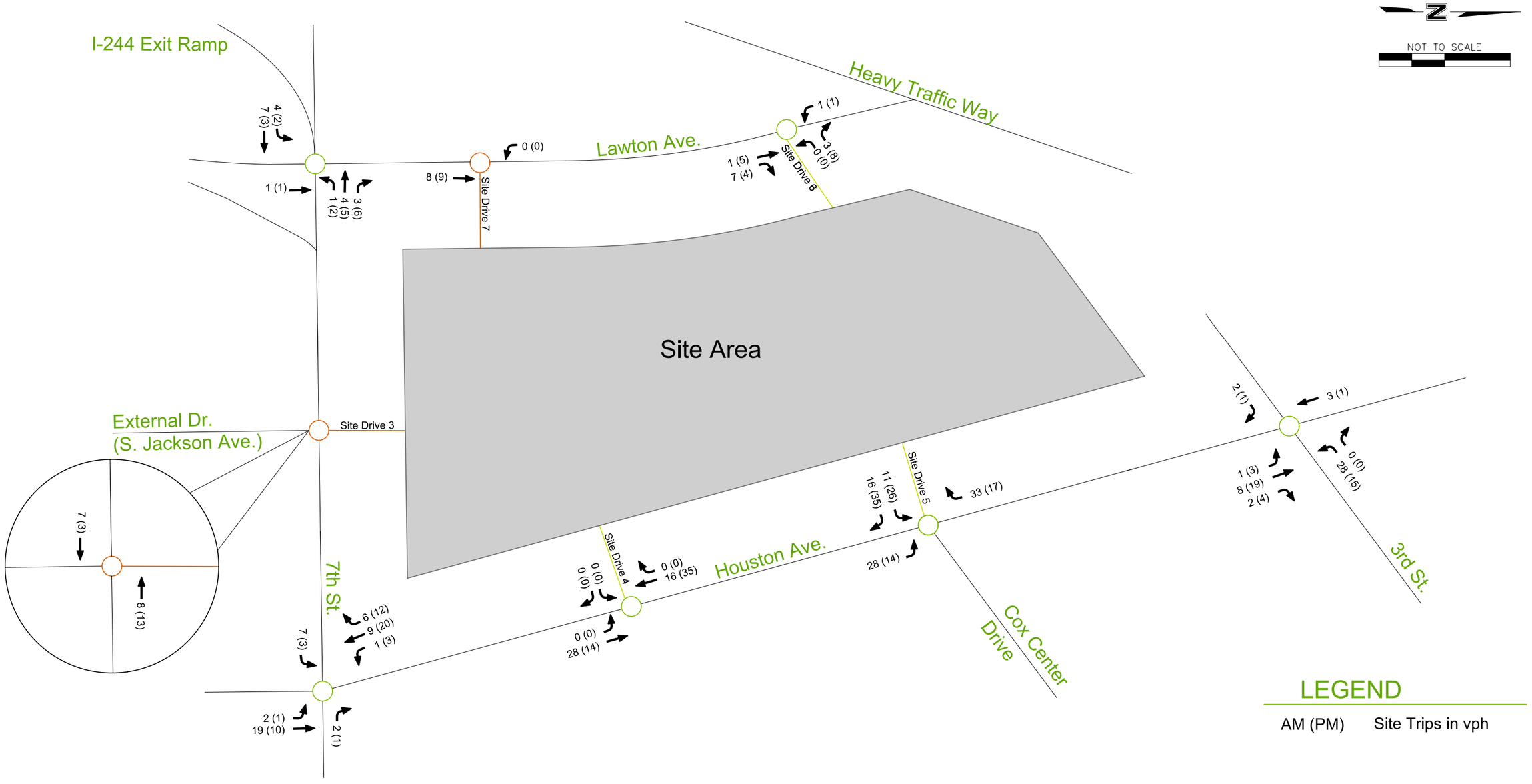


Figure 15:
2021 Base + VA Hospital + OSU CHS MH Hospital Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

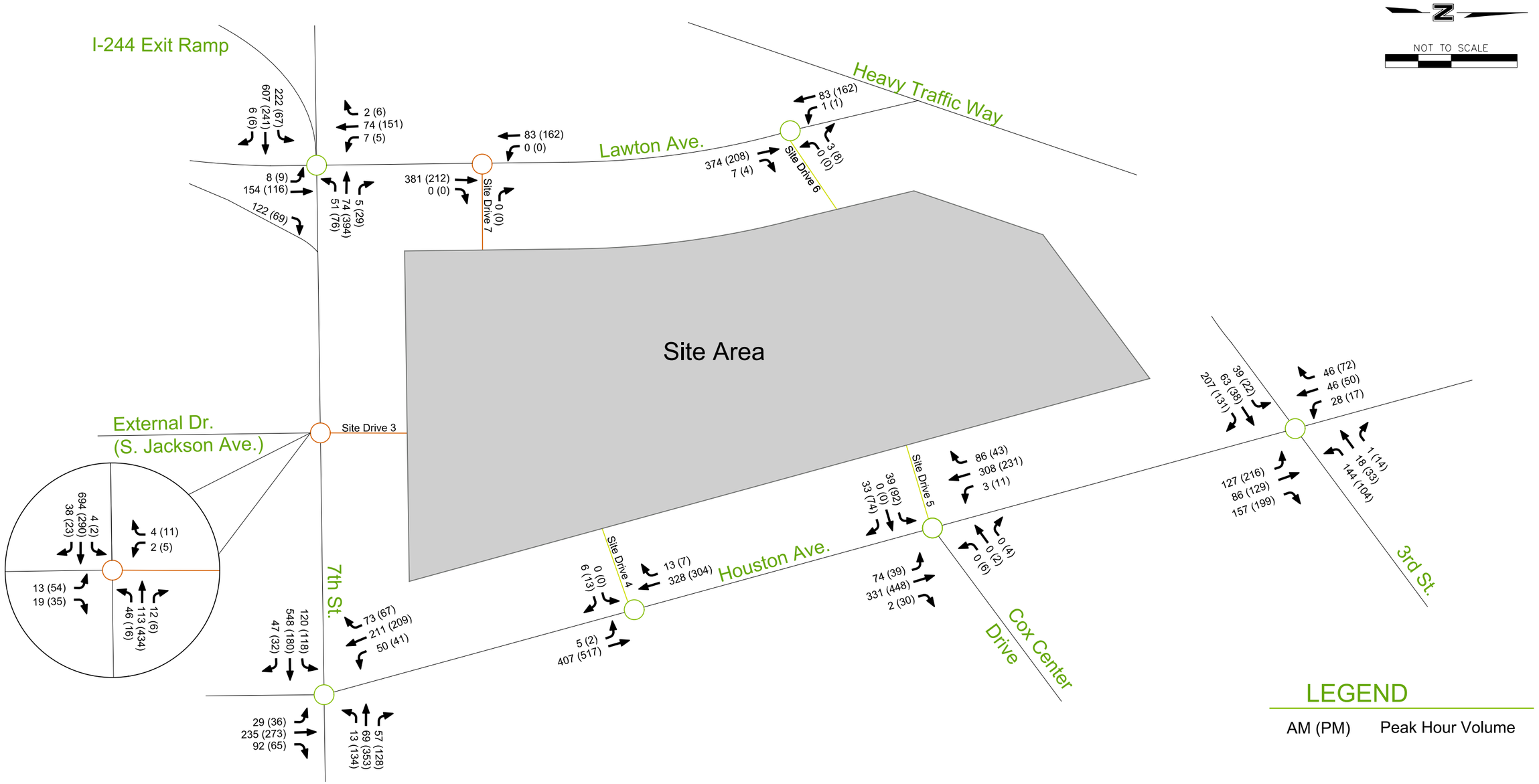


Table 9. 2021 Base + VA Hospital + OSU CHS MH Hospital Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	21.9 (C)	15.9 (B)	3rd St. EB	Left-Turn	21.0 (C)	25.2 (C)
				Thru	24.6 (C)	27.2 (C)
				Right-Turn	35.7 (D)	34.8 (C)
			3rd St. WB	Left-Turn	18.4 (B)	21.2 (C)
				Thru/Rt	20.2 (C)	22.7 (C)
			Houston Ave. NB	Left-Turn	13.5 (B)	9.1 (A)
				Thru	12.2 (B)	7.8 (A)
				Right-Turn	14.1 (B)	10.1 (B)
			Houston Ave. SB	Lt/Thru/Rt	19.9 (B)	15.0 (B)
Houston Ave. & 7th St.	15.6 (B)	12.7 (B)	7th St. EB	Left-Turn	12.7 (B)	13.2 (B)
				Thru	21.6 (C)	9.4 (A)
				Right-Turn	9.4 (A)	7.7 (A)
			7th St. WB	Left-Turn	10.6 (B)	10.4 (B)
				Thru	9.6 (A)	9.7 (A)
				Thru/Rt	9.6 (A)	9.7 (A)
			Houston Ave. NB	Thru/Lt	13.8 (B)	17.1 (B)
				Thru/Rt	13.8 (B)	17.1 (B)
			Houston Ave. SB	Thru/Lt	14.5 (B)	15.9 (B)
				Thru	14.5 (B)	15.9 (B)
				Right-Turn	12.0 (B)	13.7 (B)
7th St. & Lawton Ave.	20.2 (C)	19.0 (B)	7th St. EB	Left-Turn	18.1 (B)	19.8 (B)
				Thru	26.0 (C)	23.5 (C)
				Thru/Rt	25.9 (C)	23.5 (C)
			7th St. WB	Left-Turn	22.5 (C)	18.2 (B)
				Thru	25.8 (C)	25.7 (C)
				Thru/Rt	25.9 (C)	25.7 (C)
			Lawton Ave. NB	Thru/Lt	10.3 (B)	7.8 (A)
				Thru	10.4 (B)	7.9 (A)
				Right-Turn	11.1 (B)	8.0 (A)
			Lawton Ave. SB	Thru/Lt	9.9 (A)	8.0 (A)
				Thru/Rt	9.9 (A)	8.1 (A)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	29.6 (D)	29.1 (D)
				Thru/Rt	10.7 (B)	10.1 (B)
			Site Drive 5 WB	Left-Turn	0.0 (A)	22.5 (C)
				Thru/Rt	0.0 (A)	15.4 (C)
			Houston Ave. NB	Left-Turn	9.1 (A)	8.2 (A)
				Thru	9.1 (A)	8.2 (A)
				Thru/Rt	9.1 (A)	8.2 (A)
			Houston Ave. SB	Left-Turn	9.7 (A)	10.8 (B)
				Thru	9.7 (A)	10.8 (B)
				Thru/Rt	9.7 (A)	10.8 (B)
7th St., Site Drive 3, & External Dr.	N/A	N/A	7th St. EB	Thru/Lt	7.5 (A)	8.8 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			7th St. WB	Thru/Lt	10.0 (A)	8.6 (A)
				Thru/Rt	0.3 (A)	0.1 (A)
			External Dr. NB	Left-Turn	29.8 (D)	26.9 (D)
				Thru/Rt	11.4 (B)	10.4 (B)
			Site Drive 3 SB	Lt/Thru/Rt	11.9 (B)	14.7 (B)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	8.3 (A)	7.7 (A)
				Thru	0.0 (A)	0.0 (A)
			Site Drive 6 WB	Lt/Rt	9.7 (A)	9.1 (A)
Lawton Ave. & Site Drive 7	N/A	N/A	Site Drive 8 WB	Right-Turn	0.0 (A)	0.0 (A)
			Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Left-Turn	0.0 (A)	0.0 (A)
				Right-Turn	10.0 (B)	9.6 (A)
			Houston Ave. NB	Left-Turn	8.5 (A)	8.2 (A)
				Thru	8.5 (A)	8.2 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)

per vehicle) and the respective LOS values are provided as follows (with the 2021 base LOS preceding the 2021 base plus VA Hospital plus OSU CHS MH Hospital generated values):

- Houston Ave. & 3rd St. Signal
  - Eastbound Right: AM Peak: 4.4 s (C → D)
    PM Peak: 3.4 s (C → C)
- Site Drive 5 Stop-Controlled Intersection at Houston Ave.
  - Westbound Left: PM Peak: 4.6 s (C → C)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
  - Eastbound Thru/Left: AM Peak: 7.5 s (A → A)
    PM Peak: 8.8 s (A → A)
  - Northbound Left: AM Peak: 5.2 s (C → D)
    PM Peak: 9.6 s (C → D)
- Site Drive 6 Stop-Controlled Intersection at Lawton Ave.
  - Southbound Thru/Lt: PM Peak: 7.7 s (A → A)
- Site Drive 4 Stop-Controlled Intersection at Houston Ave.
  - Northbound Thru: AM Peak: 8.5 s (A → A)
    PM Peak: 8.2 s (A → A)

Results of the 2021 base plus VA Hospital plus OSU CHS MH Hospital-generated traffic operations analyses indicate additional average vehicular delays greater than 10.0 seconds at the following locations. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2021 base LOS preceding the 2021 base plus VA Hospital plus OSU CHS MH Hospital generated values):

- Site Drive 5 Stop-Controlled Intersection at Houston Ave.
  - Eastbound Left: AM Peak: 13.1 s (C → D)
    PM Peak: 13.6 s (C → D)

Figure 16 illustrates the 2021 base plus VA Hospital plus OSU CHS MH Hospital traffic on the proposed network capacity analysis summary for the overall study area. As compared with the 2021 base traffic analysis, additional traffic delays can be anticipated with the increase in traffic related to the new VA hospital facility, but the network is expected to operate similarly to what it does for 2021 base traffic conditions (see **Section 3.2**). Detailed results may be found in **Appendix D**.

7.2 2030 Base plus VA Hospital Traffic Capacity Analysis

The traffic volumes generated by the VA Hospital plus mental health hospital facilities were combined with the 2030 base volumes to represent the 2030 Base plus VA Hospital plus OSU

CHS MH Hospital traffic conditions for the AM and PM peak hours. 2030 base plus VA Hospital plus OSU CHS MH Hospital peak hour volumes for the overall study area are shown in **Figure 17.**

Capacity analysis for 2030 base plus VA Hospital-generated plus OSU CHS MH Hospital traffic on the improved network was conducted to analyze expected operations to compare with the 2030 base traffic on existing network.

Results of the 2021 base plus VA Hospital plus OSU CHS MH Hospital generated traffic operations analyses are summarized by intersection and lane group in **Table 10**. The weighted average delay for the signalized intersections resulted in 28.1 seconds (LOS C) in the AM Peak and 23.1 seconds (LOS C) in the PM Peak.

As compared with base 2030 conditions, the signalized intersections delays were limited to increases of 3.0 seconds or less, indicating negligible differences to the overall operations drivers can expect between the two scenarios.

Results of the 2030 base plus VA Hospital plus OSU CHS MH Hospital-generated traffic operations analyses indicate additional average vehicular delays in the range of 3.0 to 10.0 seconds at the following intersection approach lane groups. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2030 base LOS preceding the 2030 base plus VA Hospital plus OSU CHS MH Hospital generated values):

- Houston Ave. & 3rd St. Signal
    - Southbound Lt/Thru/Rt: AM Peak: 3.0 s (C → C)
PM Peak: 3.0 s (B → B)
- Houston Ave. & 7th St. Signal
    - Eastbound Left: PM Peak: 5.6 s (C → C)
- Site Drive 5 Stop-Controlled Intersection at Houston Ave.
    - Westbound Left: PM Peak: 6.3 s (C → C)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
    - Eastbound Thru/Left: AM Peak: 7.6 s (A → A)
PM Peak: 9.2 s (A → A)
    - Northbound Left: AM Peak: 9.7 s (E → E)
- Site Drive 6 Stop-Controlled Intersection at Lawton Ave.
    - Westbound Lt/Rt: AM Peak: 10.0 s (A → A)
PM Peak: 9.2 s (A → A)
- Site Drive 4 Stop-Controlled Intersection at Houston Ave.
    - Northbound Thru: AM Peak: 8.8 s (A → A)
PM Peak: 8.4 s (A → A)

Figure 16:

2021 Base + VA Hospital + OSU CHS MH Hospital Traffic on Proposed Network Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

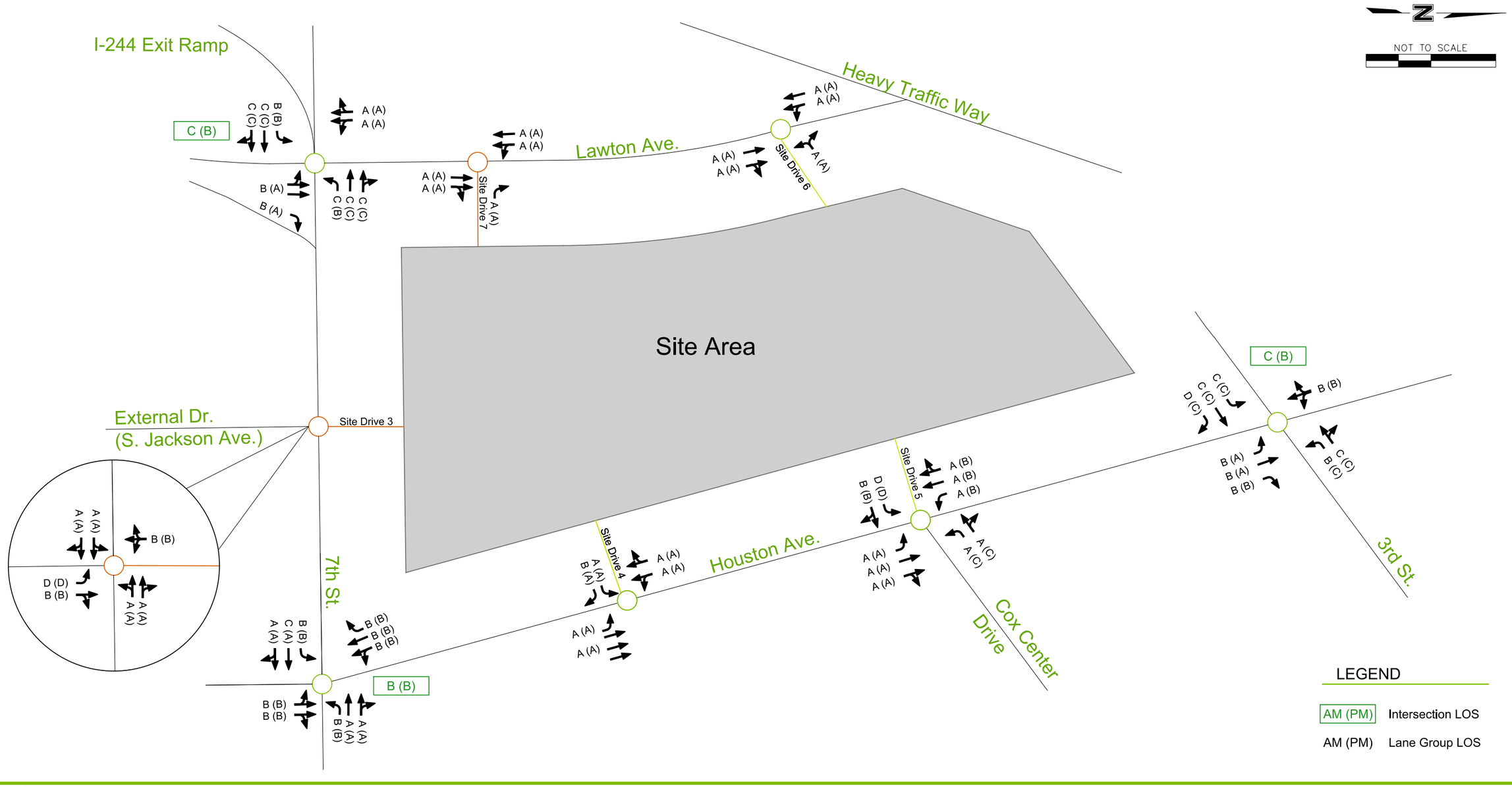


Figure 17:
2030 Base + VA Hospital + OSU CHS MH Hospital Traffic Volumes

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK

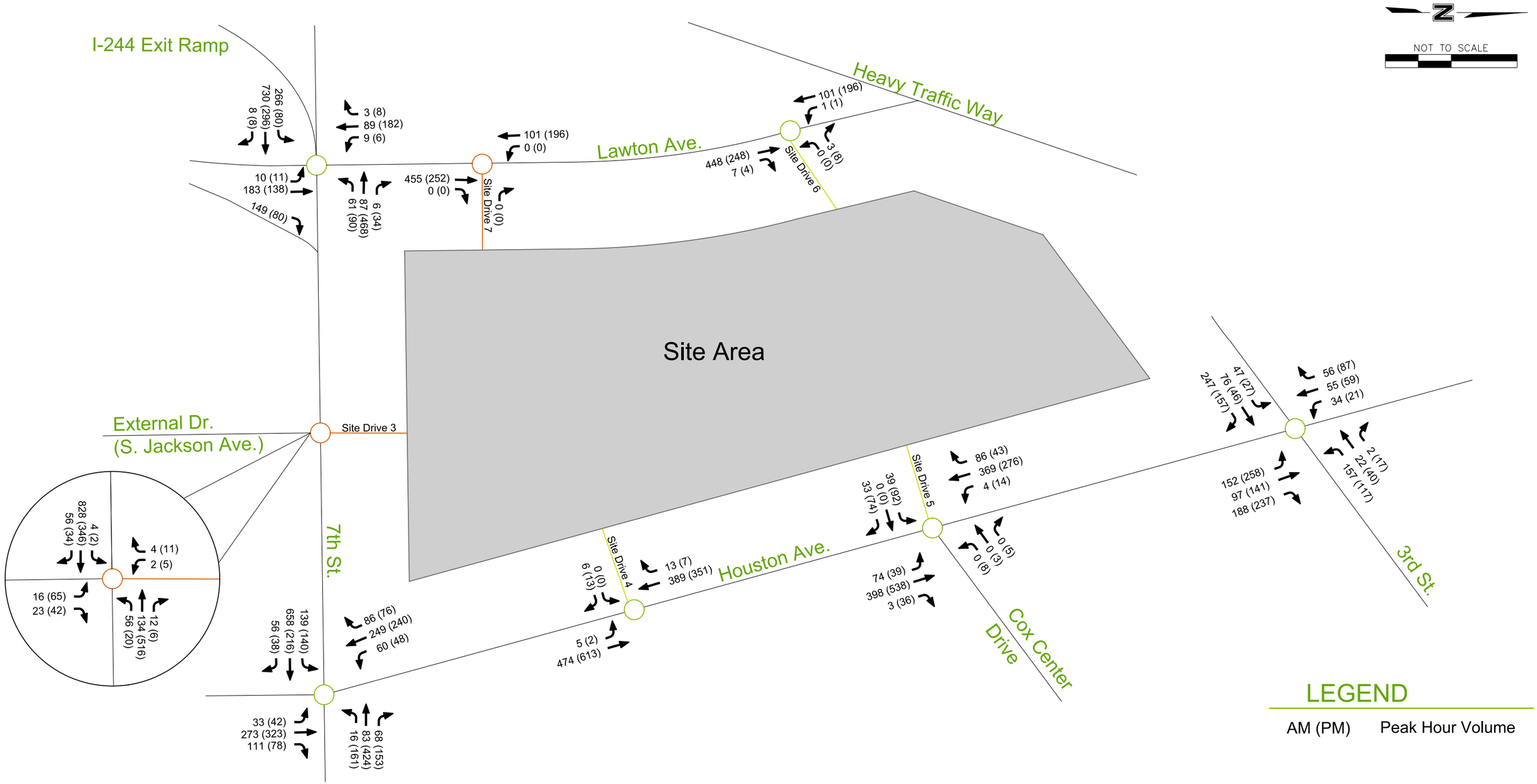


Table 10. 2030 Base + VA Hospital + OSU CHS MH Hospital Capacity Analysis Results

Intersection	Intersection Delay (LOS)		Approach	Lane Group (Movement)	Approach Control Delay (LOS)	
	AM Peak	PM Peak			AM Peak	PM Peak
Houston Ave. & 3rd St.	24.8 (C)	17.5 (B)	3rd St. EB	Left-Turn	19.8 (B)	24.8 (C)
				Thru	23.8 (C)	27.2 (C)
				Right-Turn	40.7 (D)	35.9 (D)
			3rd St. WB	Left-Turn	17.6 (B)	20.8 (C)
				Thru/Rt	19.3 (B)	22.4 (C)
			Houston Ave. NB	Left-Turn	16.7 (B)	10.8 (B)
				Thru	14.9 (B)	9.0 (A)
				Right-Turn	17.9 (B)	12.6 (B)
			Houston Ave. SB	Lt/Thru/Rt	25.3 (C)	18.5 (B)
Houston Ave. & 7th St.	20.3 (C)	14.7 (B)	7th St. EB	Left-Turn	13.7 (B)	31.9 (C)
				Thru	34.9 (C)	9.7 (A)
				Right-Turn	9.5 (A)	7.7 (A)
			7th St. WB	Left-Turn	14.3 (B)	12.1 (B)
				Thru	9.7 (A)	11.3 (B)
				Thru/Rt	9.7 (A)	11.3 (B)
			Houston Ave. NB	Thru/Lt	14.5 (B)	17.3 (B)
				Thru/Rt	14.5 (B)	17.3 (B)
			Houston Ave. SB	Thru/Lt	15.5 (B)	17.0 (B)
				Thru	15.5 (B)	17.0 (B)
				Right-Turn	12.1 (B)	13.8 (B)
7th St. & Lawton Ave.	20.8 (C)	20.0 (C)	7th St. EB	Left-Turn	17.8 (B)	18.8 (B)
				Thru	26.0 (C)	21.6 (C)
				Thru/Rt	25.9 (C)	21.6 (C)
			7th St. WB	Left-Turn	23.3 (C)	16.6 (B)
				Thru	26.4 (C)	25.9 (C)
				Thru/Rt	26.4 (C)	25.8 (C)
			Lawton Ave. NB	Thru/Lt	12.7 (B)	11.4 (B)
				Thru	12.8 (B)	11.5 (B)
				Right-Turn	13.9 (B)	11.7 (B)
			Lawton Ave. SB	Thru/Lt	12.2 (B)	11.8 (B)
				Thru/Rt	12.2 (B)	11.9 (B)
Houston Ave. & Site Drive 5	N/A	N/A	Site Drive 5 EB	Left-Turn	39.9 (E)	44.7 (E)
				Thru/Rt	11.1 (B)	10.4 (B)
			Site Drive 5 WB	Left-Turn	0.0 (A)	29.0 (D)
				Thru/Rt	0.0 (A)	19.1 (C)
			Houston Ave. NB	Left-Turn	9.4 (A)	8.4 (A)
				Thru	9.4 (A)	8.4 (A)
				Thru/Rt	9.4 (A)	8.4 (A)
			Houston Ave. SB	Left-Turn	10.1 (B)	11.7 B)
				Thru	10.1 (B)	11.7 B)
				Thru/Rt	10.1 (B)	11.7 B)
7th St., Site Drive 3, & External Dr.	N/A	N/A	7th St. EB	Thru/Lt	7.6 (A)	9.2 (A)
				Thru/Rt	0.1 (A)	0.0 (A)
			7th St. WB	Thru/Lt	11.0 (B)	9.0 (A)
				Thru/Rt	0.4 (A)	0.2 (A)
			External Dr. NB	Left-Turn	46.4 (E)	44.6 (E)
				Thru/Rt	12.3 (B)	11.0 (B)
			Site Drive 3 SB	Lt/Thru/Rt	13.4 (B)	17.5 (C)
Lawton Ave. & Site Drive 6	N/A	N/A	Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	8.5 (A)	7.8 (A)
				Thru	0.0 (A)	0.0 (A)
			Site Drive 6 WB	Lt/Rt	10.0 (B)	9.2 (A)
Lawton Ave. & Site Drive 7	N/A	N/A	Site Drive 8 WB	Right-Turn	0.0 (A)	0.0 (A)
			Lawton Ave. NB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)
			Lawton Ave. SB	Thru/Lt	0.0 (A)	0.0 (A)
				Thru	0.0 (A)	0.0 (A)
Houston Ave. & Site Drive 4	N/A	N/A	Site Drive 4 EB	Left-Turn	0.0 (A)	0.0 (A)
				Right-Turn	10.1 (B)	9.9 (A)
			Houston Ave. NB	Left-Turn	8.8 (A)	8.4 (A)
				Thru	8.8 (A)	8.4 (A)
			Houston Ave. SB	Thru	0.0 (A)	0.0 (A)
				Thru/Rt	0.0 (A)	0.0 (A)

Results of the 2030 base plus VA Hospital plus OSU CHS MH Hospital-generated traffic operations analyses indicate additional average vehicular delays greater than 10.0 seconds at the following locations. The additional delay (in seconds per vehicle) and the respective LOS values are provided as follows (with the 2030 base LOS preceding the 2030 base plus VA Hospital plus OSU CHS MH Hospital generated values):

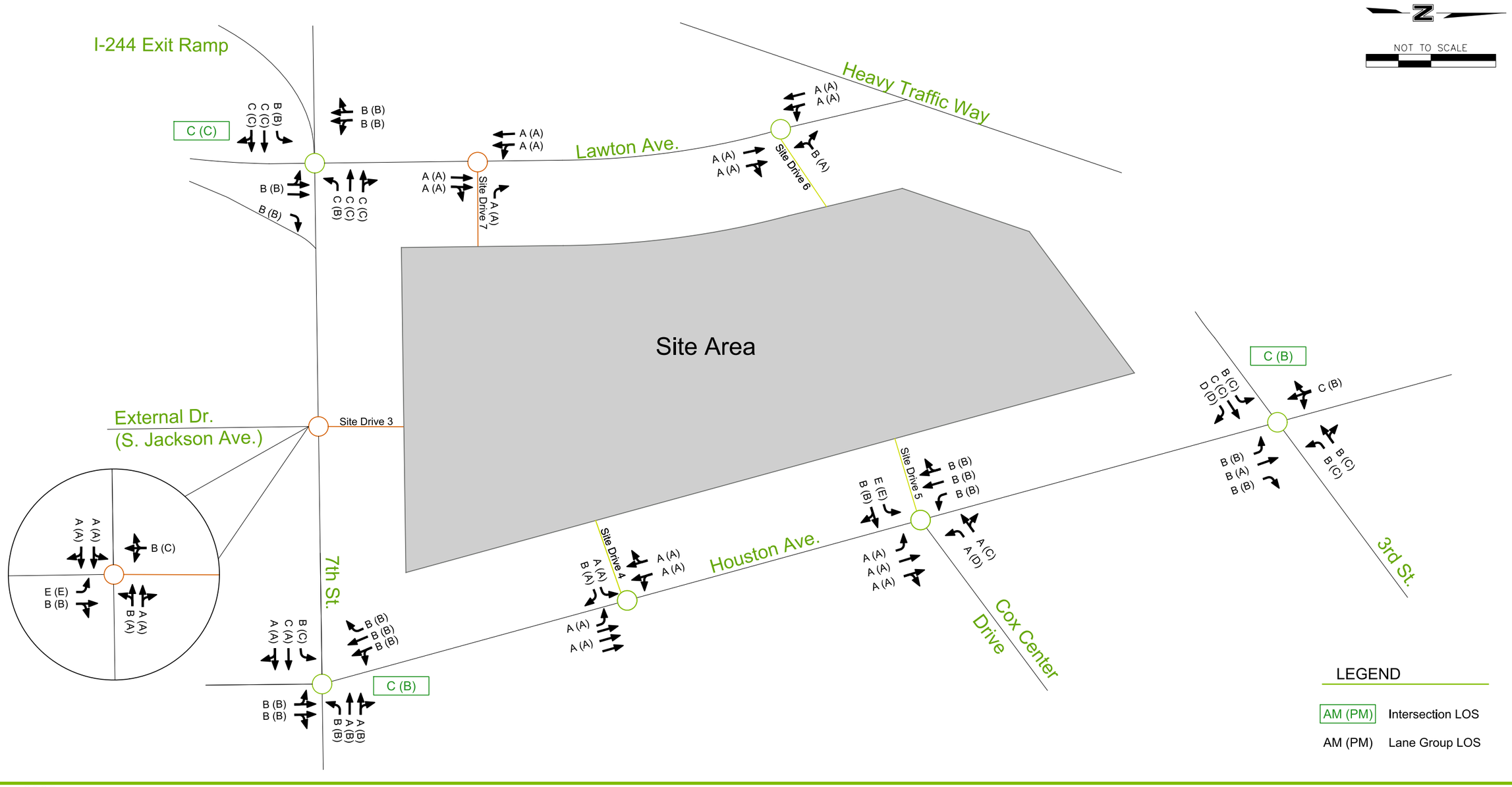
- Site Drive 5 Stop-Controlled Intersection at Houston Ave.
  - Eastbound Left: AM Peak: 20.1 s (C → E)
    PM Peak: 25.9 s (C → E)
  - Southbound Thru: AM Peak: 10.1 s (A → B)
  - Southbound Thru/Rt: AM Peak: 10.1 s (A → B)
- Site Drive 3 Stop-Controlled Intersection at 7th St.
  - Northbound Left: PM Peak: 21.9 s (C → E)

Figure 18 illustrates the 2030 base plus VA Hospital plus OSU CHS MH Hospital traffic on the proposed network capacity analysis summary for the overall study area. As compared with the 2030 base traffic analysis, additional traffic delays can be anticipated with the increase in traffic related to the new VA hospital facility which will be more concentrated at the signalized intersections, but the network is expected to operate similarly to what it does for 2030 base traffic conditions (see **Section 3.2**). Detailed results may be found in **Appendix D**.

Figure 18:

2030 Base + VA Hospital + OSU CHS MH Hospital Traffic on Proposed Network Capacity Analysis Summary

Proposed Tulsa VA Hospital Traffic Study
Tulsa, OK



8 CONCLUSION

A capacity analysis was performed at study intersections based on the assumed opening year of the site (2021) and a 9-year horizon year (2030).

8.1 Required Improvements

After a review of the existing conditions along the street and consideration of the anticipated traffic that would be generated by the proposed site, required improvements are detailed below and were included in the base plus VA Hospital-generated on proposed network capacity analysis. All required improvements shall be constructed/installed prior to the opening of the site.

Houston Avenue and Site Drive 5

Given that the drive at this location will be the primary access drive for the facility overall with the most direct access to and from the proposed parking garage, a 260’ long left-turn lane separate from the through/right lane shall be provided in the eastbound direction. The critical 95th percentile queue length for the eastbound left-turn lane is nearly 200 feet. The recommended turn-lane length (260’) will accommodate the queues and facilitate accessibility from the primary access road and the parking garage exit points.

The intersection should remain as a two-stop, control intersection with Houston Ave. flowing freely. No landscaping taller than two feet in height shall be allowed within the effective sight triangles of vehicles stopped on the site drive approach.

Houston Avenue and Site Drive 4 (access modification)

The existing partial drive access restriction should be removed and full access allowed at this location to more directly serve the southeast parking lot from Houston Ave. A portion of the raised center median will have to be reconstructed as at-grade pavement, as well as a 150’ long left-turn lane provided in the northbound direction on Houston Ave. Stop-control is recommended for the drive with Houston Ave. flowing freely. No landscaping taller than two feet in height shall be allowed within the effective sight triangles of vehicles stopped on the site drive approach. Stop-control is recommended for the drive with Houston Ave. flowing freely.

7th Street and Site Drive 3

Site Drive 3, accessing 7th St., is recommended to align with the existing external driveway cut to the south will all movements allowed at this intersection. The northbound and southbound drive approaches will be stop-controlled with 7th St. allowed to flow freely.

Lawton Avenue and Site Drive 7

A new full-movement drive to/from Lawton Avenue is recommended to serve the loading docks on the west side of the VA Hospital building. Access shall be restricted to delivery trucks and trash trucks only.

7th Street and Ambulance Access Drive

The ambulance entrance/exit drive is located just west of Site Drive 3 on 7th Street, near the current location of Site Drive 2. Access shall be restricted to ambulances only.

8.2 Further Recommended Improvements

After a review of the existing conditions along the street and consideration of the anticipated traffic that would be generated by the proposed site, further recommended improvements are detailed below and were included in the base plus VA Hospital-generated on proposed network capacity analysis. All further recommended improvements should be constructed/installed prior to the opening of the site. Some of the improvements are not within the control of the developer, such as implementing signal timing adjustments at the local street intersections.

Houston Avenue and 3rd Street – Existing Signalized Intersection

Signal timing adjustments are recommended, to the extent that they can be implemented without unduly affecting existing corridor or network signal timing plans in place for this area.

Houston Avenue and 7th Street

No improvements are recommended to this intersection except for signal timing adjustments as appropriate.

7th Street and Lawton Avenue

For overall traffic flow in the area, some signal timing adjustments should be considered to the extent that they can be implemented without unduly affecting existing corridor or network signal timing plans in place for this area.

Appropriate signing and pavement marking improvements will be required to support the site's development and some of the recommendations as provided in this study. After this traffic study was submitted, a mid-block crosswalk on 7th St. was proposed and their consideration is deemed outside of the scope of this study. Before installing a new marked crosswalk, an engineering study is needed to determine the suitability and design needs. As an alternative to a potential mid-block marked crosswalk, additional improvements and striping could be considered on the east leg of the 7th Street and Lawton Avenue intersection. A summary of the recommended improvements to the street network is illustrated in **Figure 19**.

Figure 19:
Recommended Improvements

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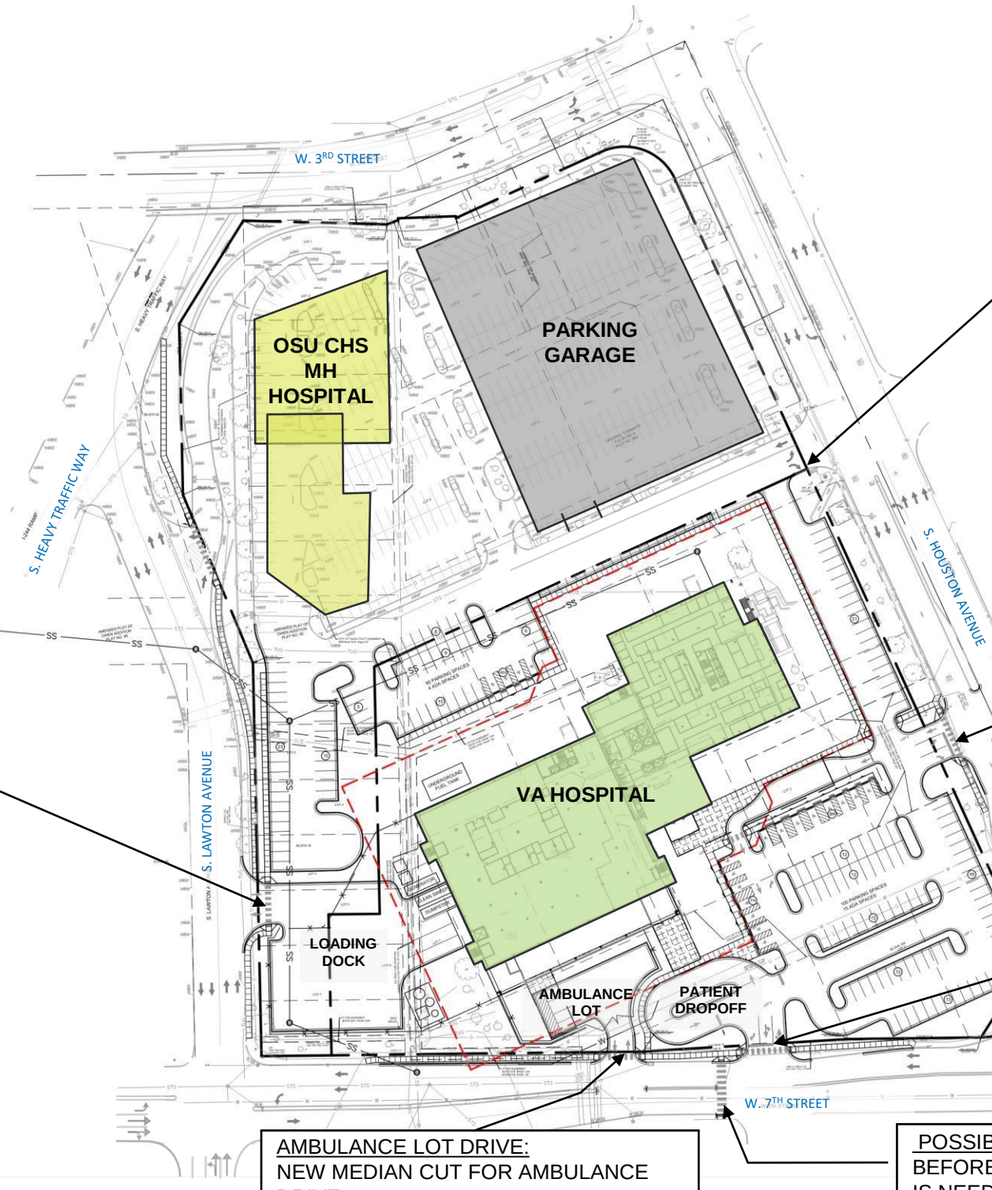

AT SITE DRIVE 5:
TWO-WAY STOP-CONTROLLED INTERSECTION (HOUSTON AVE. FLOWS FREE.

PROVIDE TWO (2) EASTBOUND LANES FOR 260' WEST OF HOUSTON AVENUE - A LEFT-TURN LANE AND A THRU/RIGHT TURN LANE.

N

NOT TO SCALE

AT SITE DRIVE 4:
NEW MEDIAN OPENING FOR FULL-ACCESS. TWO-WAY STOP-CONTROLLED INTERSECTION (HOUSTON AVE. FLOWS FREE.

PROVIDE TWO (2) EASTBOUND LANES FOR 30' WEST OF HOUSTON AVENUE - A LEFT-TURN LANE AND A RIGHT TURN LANE.

MODIFY CENTER MEDIAN ALONG HOUSTON AVE. TO PROVIDE A NEW 150' NORTHBOUND LEFT-TURN LANE.

AT SITE DRIVE 7:
LOADING DOCK ACCESS ONLY.

AT SITE DRIVE 3:
TWO-WAY STOP-CONTROLLED INTERSECTION (7TH FLOWS FREE).

AMBULANCE LOT DRIVE:
NEW MEDIAN CUT FOR AMBULANCE DRIVE.

POSSIBLE MID-BLOCK CROSSWALK AT W. 7TH ST.:
BEFORE INSTALLING A NEW MARKED CROSSWALK, AN ENGINEERING STUDY IS NEEDED TO DETERMINE THE SUITABILITY AND DESIGN NEEDS.

APPENDIX A

Raw Traffic Count Data

1) Lawton & 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton					7th					Lawton					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:00AM	1	62	8	0	**71**	6	59	37	0	**102**	92	94	11	0	**197**	4	393	127	0	**524**	**894**
8:00AM	2	61	4	0	**67**	6	67	38	1	**112**	101	147	5	0	**253**	4	520	171	0	**695**	**1127**
3:00PM	2	54	3	0	**59**	6	103	28	0	**137**	24	43	10	0	**77**	4	60	26	2	**92**	**365**
4:00PM	4	141	6	0	**151**	21	297	68	1	**387**	60	77	11	0	**148**	7	133	42	2	**184**	**870**
5:00PM	3	133	8	0	**144**	22	315	55	1	**393**	56	106	13	0	**175**	9	224	76	1	**310**	**1022**
Total	12	451	29	0	**492**	61	841	226	3	**1131**	333	467	50	0	**850**	28	1330	442	5	**1805**	**4278**
% Approach	2.4%	91.7%	5.9%	0%	**-**	5.4%	74.4%	20.0%	0.3%	**-**	39.2%	54.9%	5.9%	0%	**-**	1.6%	73.7%	24.5%	0.3%	**-**	-
% Total	0.3%	10.5%	0.7%	0%	**11.5%**	1.4%	19.7%	5.3%	0.1%	**26.4%**	7.8%	10.9%	1.2%	0%	**19.9%**	0.7%	31.1%	10.3%	0.1%	**42.2%**	-
Lights	11	440	24	0	**475**	61	833	220	3	**1117**	329	458	42	0	**829**	28	1321	434	5	**1788**	4209
% Lights	91.7%	97.6%	82.8%	0%	**96.5%**	100%	99.0%	97.3%	100%	**98.8%**	98.8%	98.1%	84.0%	0%	**97.5%**	100%	99.3%	98.2%	100%	**99.1%**	98.4%
Articulated Trucks	0	2	0	0	**2**	0	0	0	0	**0**	1	0	1	0	**2**	0	1	0	0	**1**	5
% Articulated Trucks	0%	0.4%	0%	0%	**0.4%**	0%	0%	0%	0%	**0%**	0.3%	0%	2.0%	0%	**0.2%**	0%	0.1%	0%	0%	**0.1%**	0.1%
Buses and Single-Unit Trucks	1	9	5	0	**15**	0	8	6	0	**14**	3	9	7	0	**19**	0	8	8	0	**16**	64
% Buses and Single-Unit Trucks	8.3%	2.0%	17.2%	0%	**3.0%**	0%	1.0%	2.7%	0%	**1.2%**	0.9%	1.9%	14.0%	0%	**2.2%**	0%	0.6%	1.8%	0%	**0.9%**	1.5%

*L: Left, R: Right, T: Thru, U: U-Turn

1) Lawton & 7th - TMC
Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

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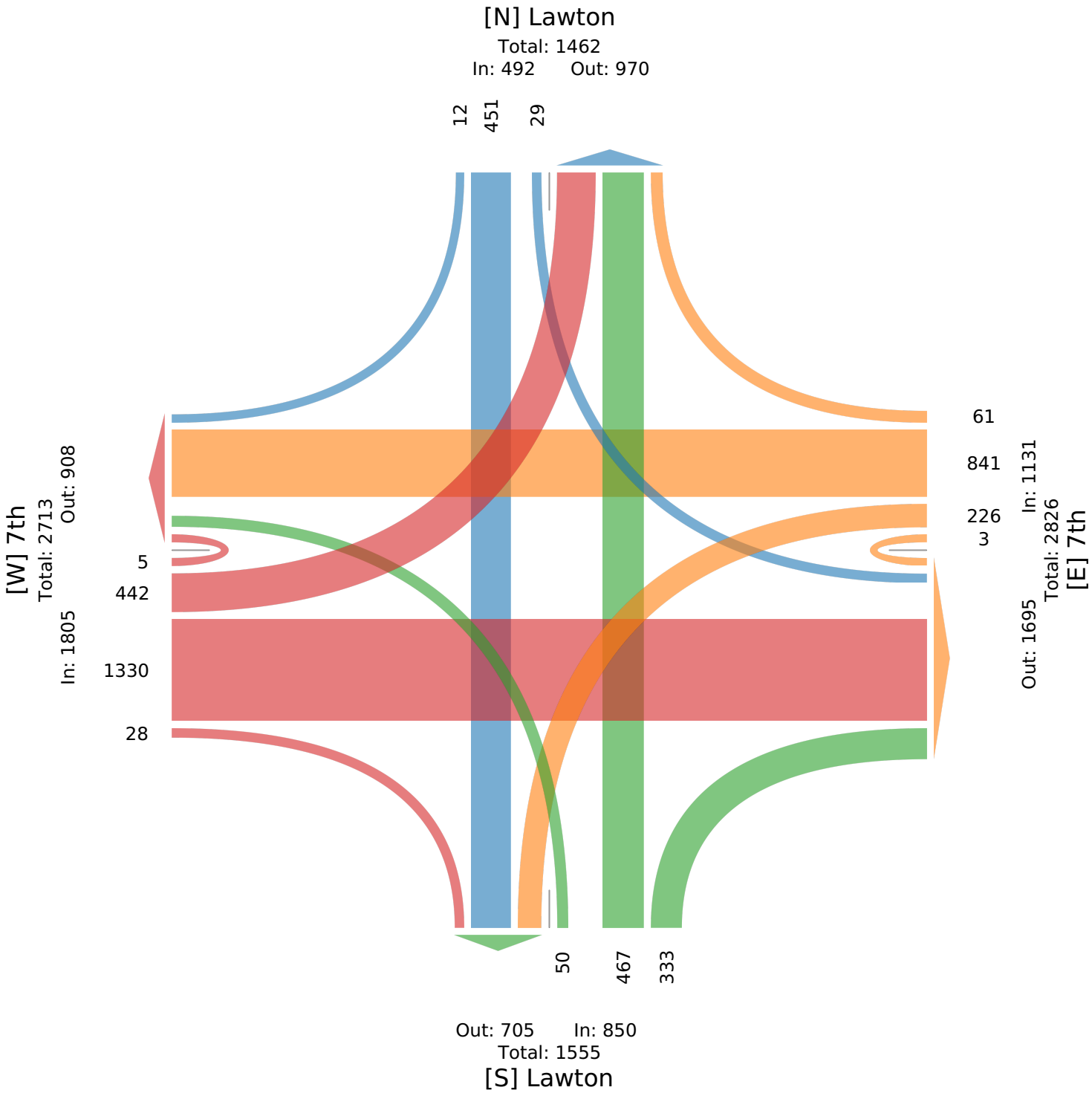
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



1) Lawton & 7th - TMC

Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton					7th					Lawton					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2021-11-18 7:45AM	0	17	3	0	**20**	0	19	17	0	**36**	38	35	3	0	**76**	2	137	61	0	**200**	**332**
8:00AM	0	20	1	0	**21**	0	20	17	0	**37**	24	36	3	0	**63**	3	154	71	0	**228**	**349**
8:15AM	1	16	1	0	**18**	0	12	6	1	**19**	38	39	1	0	**78**	1	148	58	0	**207**	**322**
8:30AM	1	11	0	0	**12**	2	14	8	0	**24**	26	43	1	0	**70**	0	130	28	0	**158**	**264**
Total	2	64	5	0	**71**	2	65	48	1	**116**	126	153	8	0	**287**	6	569	218	0	**793**	**1267**
% Approach	2.8%	90.1%	7.0%	0%	**-**	1.7%	56.0%	41.4%	0.9%	**-**	43.9%	53.3%	2.8%	0%	**-**	0.8%	71.8%	27.5%	0%	**-**	-
% Total	0.2%	5.1%	0.4%	0%	**5.6%**	0.2%	5.1%	3.8%	0.1%	**9.2%**	9.9%	12.1%	0.6%	0%	**22.7%**	0.5%	44.9%	17.2%	0%	**62.6%**	-
PHF	0.500	0.800	0.417	-	**0.845**	0.250	0.813	0.706	0.250	**0.784**	0.829	0.890	0.667	-	**0.920**	0.500	0.924	0.768	-	**0.870**	0.908
Lights	1	61	4	0	**66**	2	62	45	1	**110**	123	150	5	0	**278**	6	566	214	0	**786**	1240
% Lights	50.0%	95.3%	80.0%	0%	**93.0%**	100%	95.4%	93.8%	100%	**94.8%**	97.6%	98.0%	62.5%	0%	**96.9%**	100%	99.5%	98.2%	0%	**99.1%**	97.9%
Articulated Trucks	0	1	0	0	**1**	0	0	0	0	**0**	1	0	0	0	**1**	0	1	0	0	**1**	3
% Articulated Trucks	0%	1.6%	0%	0%	**1.4%**	0%	0%	0%	0%	**0%**	0.8%	0%	0%	0%	**0.3%**	0%	0.2%	0%	0%	**0.1%**	0.2%
Buses and Single-Unit Trucks	1	2	1	0	**4**	0	3	3	0	**6**	2	3	3	0	**8**	0	2	4	0	**6**	24
% Buses and Single-Unit Trucks	50.0%	3.1%	20.0%	0%	**5.6%**	0%	4.6%	6.3%	0%	**5.2%**	1.6%	2.0%	37.5%	0%	**2.8%**	0%	0.4%	1.8%	0%	**0.8%**	1.9%

*L: Left, R: Right, T: Thru, U: U-Turn

1) Lawton & 7th - TMC
Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

GEWALT HAMILTON ASSOCIATES, INC.
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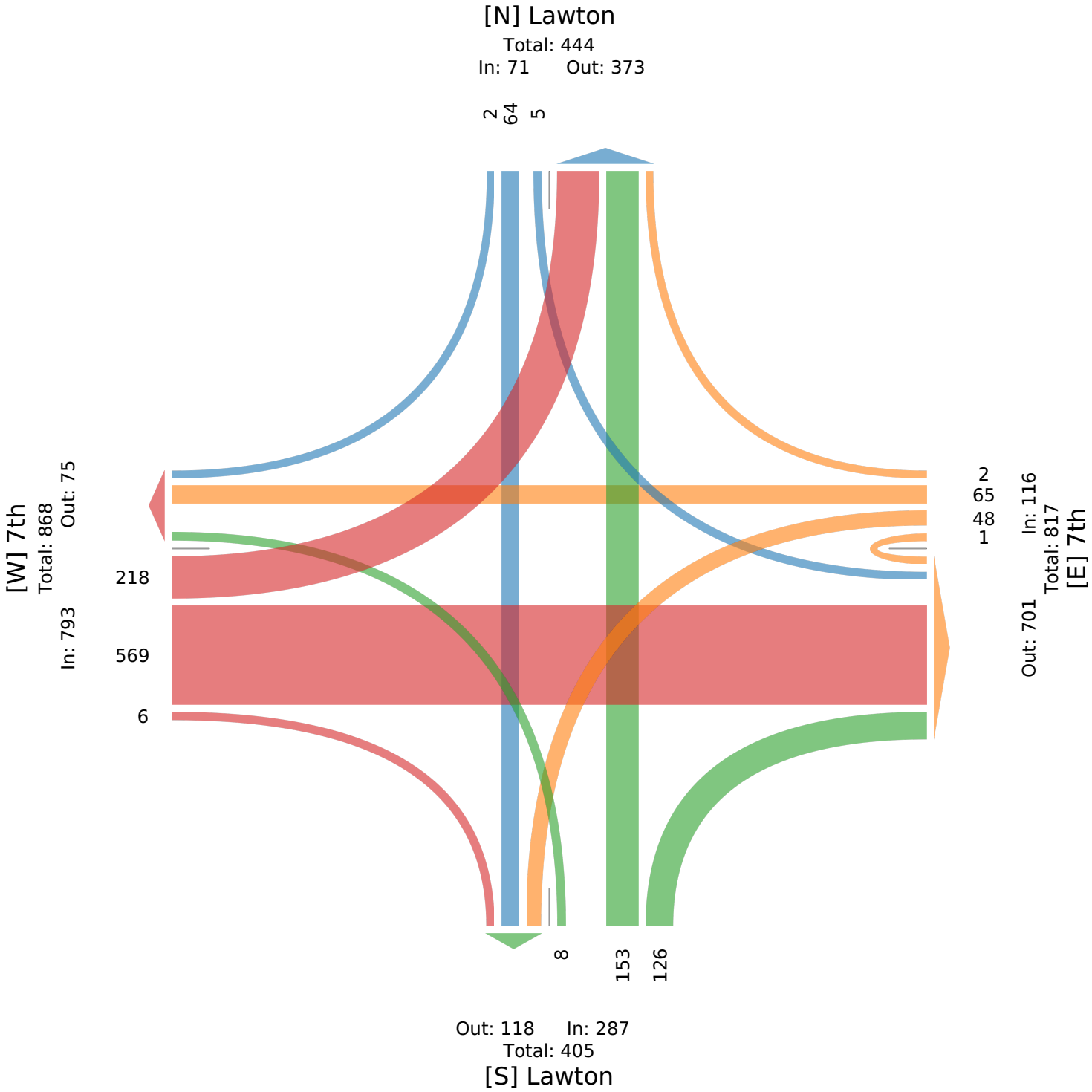

1) Lawton & 7th - TMC

Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton					7th					Lawton					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 4:30PM	0	47	0	0	**47**	8	92	20	0	**120**	20	17	5	0	**42**	2	31	11	0	**44**	**253**
4:45PM	4	29	1	0	**34**	3	80	20	1	**104**	14	22	2	0	**38**	1	37	14	1	**53**	**229**
5:00PM	1	51	1	0	**53**	6	140	16	0	**162**	21	31	2	0	**54**	1	50	13	0	**64**	**333**
5:15PM	1	29	3	0	**33**	6	76	18	0	**100**	13	32	0	0	**45**	2	62	20	0	**84**	**262**
Total	6	156	5	0	**167**	23	388	74	1	**486**	68	102	9	0	**179**	6	180	58	1	**245**	**1077**
% Approach	3.6%	93.4%	3.0%	0%	**-**	4.7%	79.8%	15.2%	0.2%	**-**	38.0%	57.0%	5.0%	0%	**-**	2.4%	73.5%	23.7%	0.4%	**-**	-
% Total	0.6%	14.5%	0.5%	0%	**15.5%**	2.1%	36.0%	6.9%	0.1%	**45.1%**	6.3%	9.5%	0.8%	0%	**16.6%**	0.6%	16.7%	5.4%	0.1%	**22.7%**	-
PHF	0.375	0.765	0.417	-	**0.788**	0.719	0.693	0.925	0.250	**0.750**	0.810	0.797	0.450	-	**0.829**	0.750	0.726	0.725	0.250	**0.729**	0.809
Lights	6	155	4	0	**165**	23	387	74	1	**485**	68	101	7	0	**176**	6	178	58	1	**243**	1069
% Lights	100%	99.4%	80.0%	0%	**98.8%**	100%	99.7%	100%	100%	**99.8%**	100%	99.0%	77.8%	0%	**98.3%**	100%	98.9%	100%	100%	**99.2%**	99.3%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	1	1	0	**2**	0	1	0	0	**1**	0	1	2	0	**3**	0	2	0	0	**2**	8
% Buses and Single-Unit Trucks	0%	0.6%	20.0%	0%	**1.2%**	0%	0.3%	0%	0%	**0.2%**	0%	1.0%	22.2%	0%	**1.7%**	0%	1.1%	0%	0%	**0.8%**	0.7%

*L: Left, R: Right, T: Thru, U: U-Turn

1) Lawton & 7th - TMC
Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897932, Location: 36.147919, -96.000858

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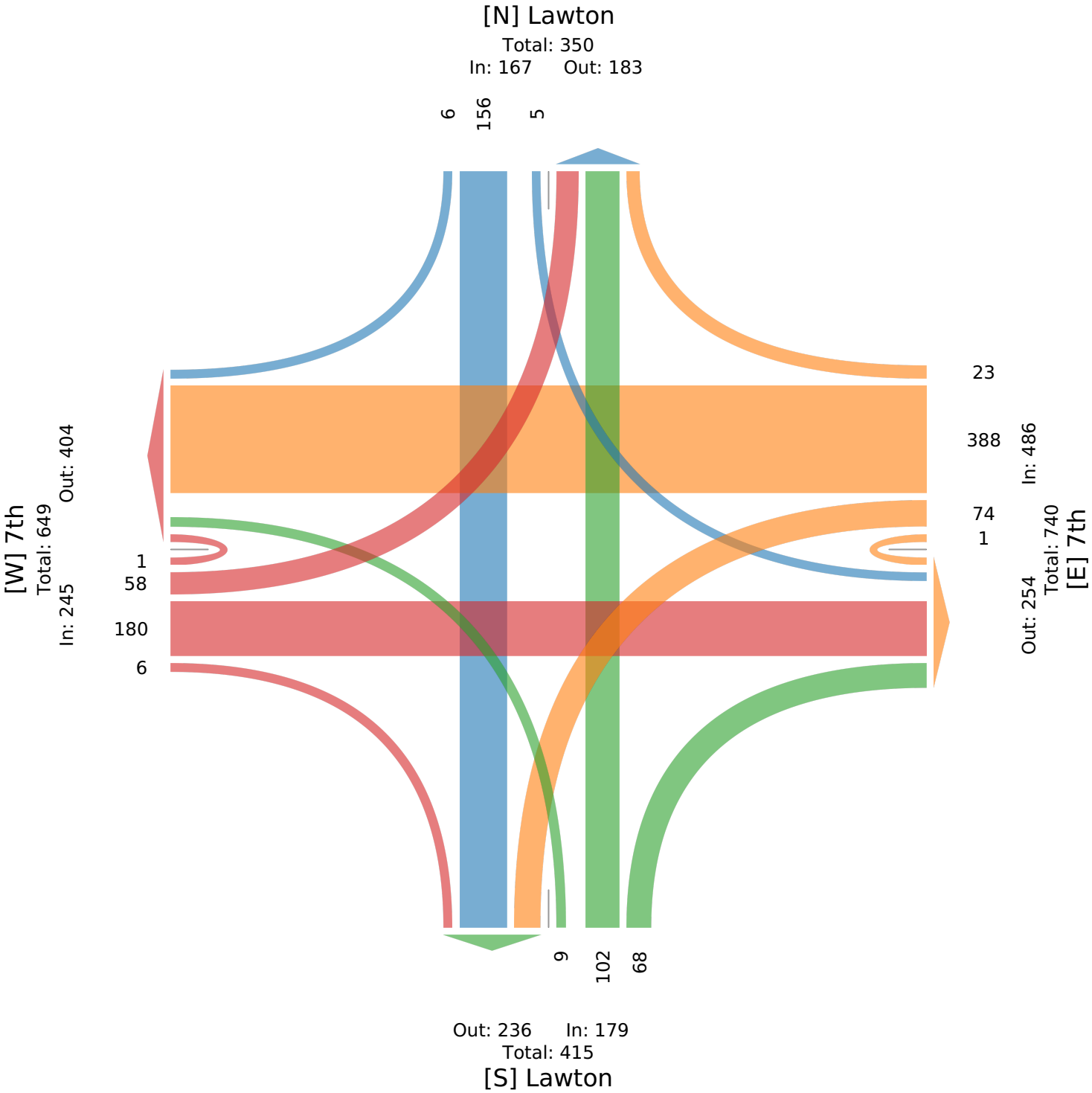


2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

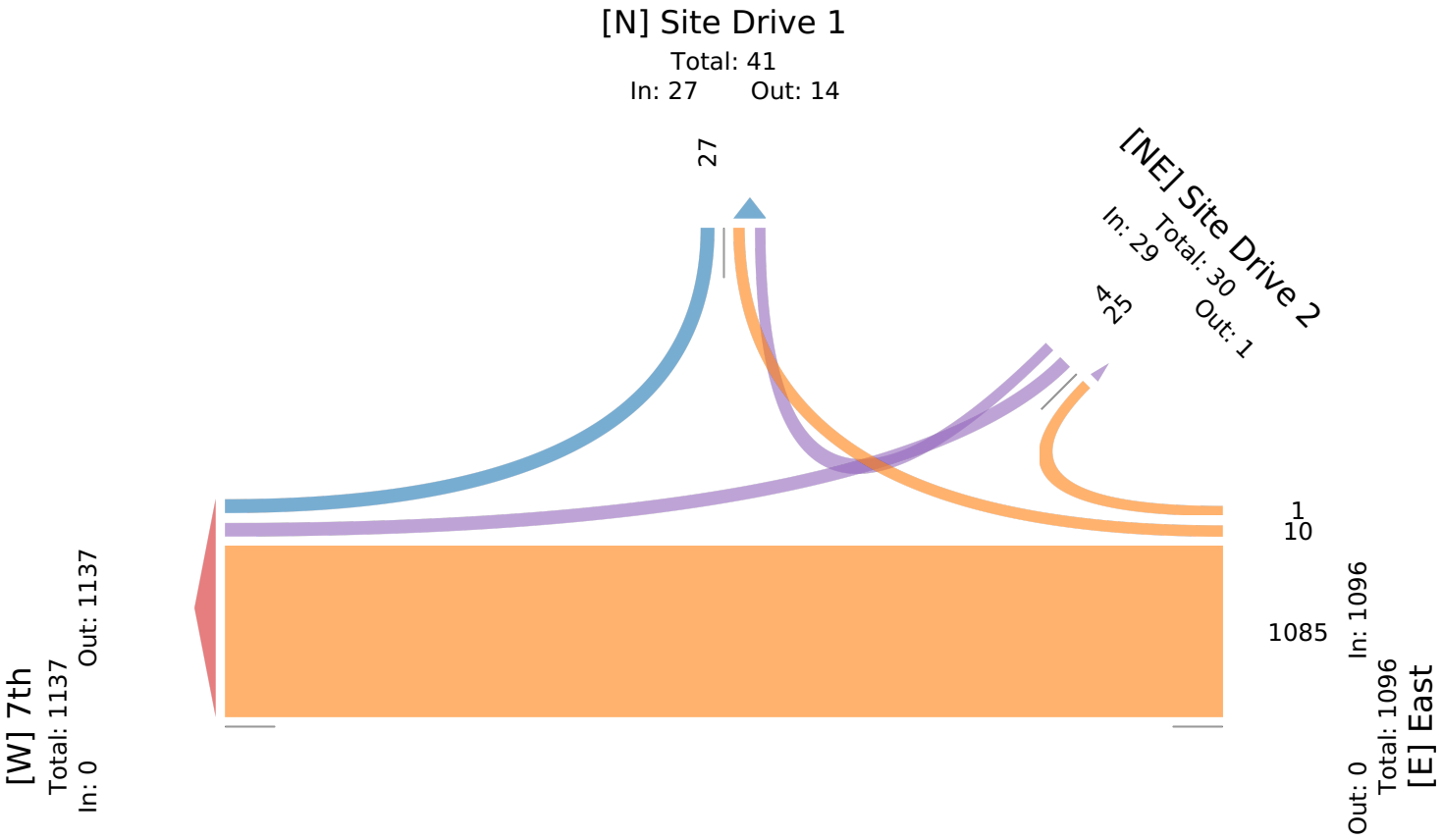
Leg	Site Drive 1				Site Drive 2				East				
Direction	Southbound				Southwestbound				Westbound				
Time	R	HL	U	**App**	HR	BR	U	**App**	HR	R	T	**App**	**Int**
2021-11-18 7:00AM	1	0	0	**1**	0	1	0	**1**	1	5	100	**106**	**108**
8:00AM	1	0	0	**1**	4	0	0	**4**	0	2	112	**114**	**119**
3:00PM	5	0	0	**5**	0	5	0	**5**	0	1	128	**129**	**139**
4:00PM	11	0	0	**11**	0	10	0	**10**	0	1	372	**373**	**394**
5:00PM	9	0	0	**9**	0	9	0	**9**	0	1	373	**374**	**392**
Total	27	0	0	**27**	4	25	0	**29**	1	10	1085	**1096**	**1152**
% Approach	100%	0%	0%	**-**	13.8%	86.2%	0%	**-**	0.1%	0.9%	99.0%	**-**	-
% Total	2.3%	0%	0%	**2.3%**	0.3%	2.2%	0%	**2.5%**	0.1%	0.9%	94.2%	**95.1%**	-
Lights	27	0	0	**27**	4	25	0	**29**	1	10	1069	**1080**	1136
% Lights	100%	0%	0%	**100%**	100%	100%	0%	**100%**	100%	100%	98.5%	**98.5%**	98.6%
Articulated Trucks	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	0	0	**0**	0	0	0	**0**	0	0	16	**16**	16
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	1.5%	**1.5%**	1.4%

*BR: Bear right, HL: Hard left, HR: Hard right, R: Right, T: Thru, U: U-Turn

2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

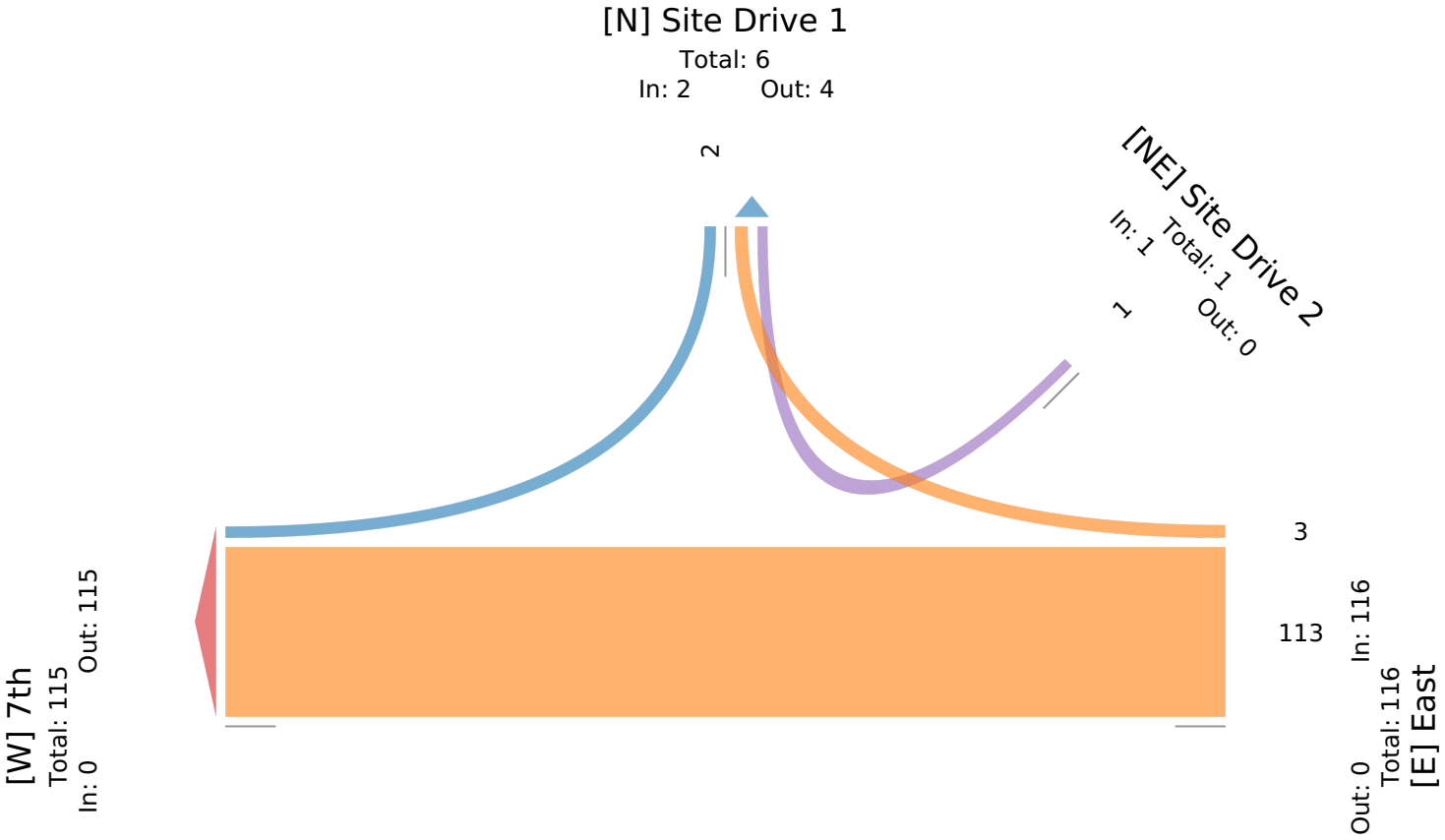
Leg	Site Drive 1				Site Drive 2				East				
Direction	Southbound				Southwestbound				Westbound				
Time	R	HL	U	**App**	HR	BR	U	**App**	HR	R	T	**App**	**Int**
2021-11-18 7:30AM	1	0	0	**1**	0	0	0	**0**	0	3	25	**28**	**29**
7:45AM	0	0	0	**0**	0	0	0	**0**	0	0	33	**33**	**33**
8:00AM	1	0	0	**1**	0	0	0	**0**	0	0	37	**37**	**38**
8:15AM	0	0	0	**0**	1	0	0	**1**	0	0	18	**18**	**19**
Total	2	0	0	**2**	1	0	0	**1**	0	3	113	**116**	**119**
% Approach	100%	0%	0%	**-**	100%	0%	0%	**-**	0%	2.6%	97.4%	**-**	-
% Total	1.7%	0%	0%	**1.7%**	0.8%	0%	0%	**0.8%**	0%	2.5%	95.0%	**97.5%**	-
PHF	0.500	-	-	**0.500**	0.250	-	-	**0.250**	-	0.250	0.764	**0.784**	0.783
Lights	2	0	0	**2**	1	0	0	**1**	0	3	108	**111**	114
% Lights	100%	0%	0%	**100%**	100%	0%	0%	**100%**	0%	100%	95.6%	**95.7%**	95.8%
Articulated Trucks	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	0	0	**0**	0	0	0	**0**	0	0	5	**5**	5
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	4.4%	**4.3%**	4.2%

*BR: Bear right, HL: Hard left, HR: Hard right, R: Right, T: Thru, U: U-Turn

2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

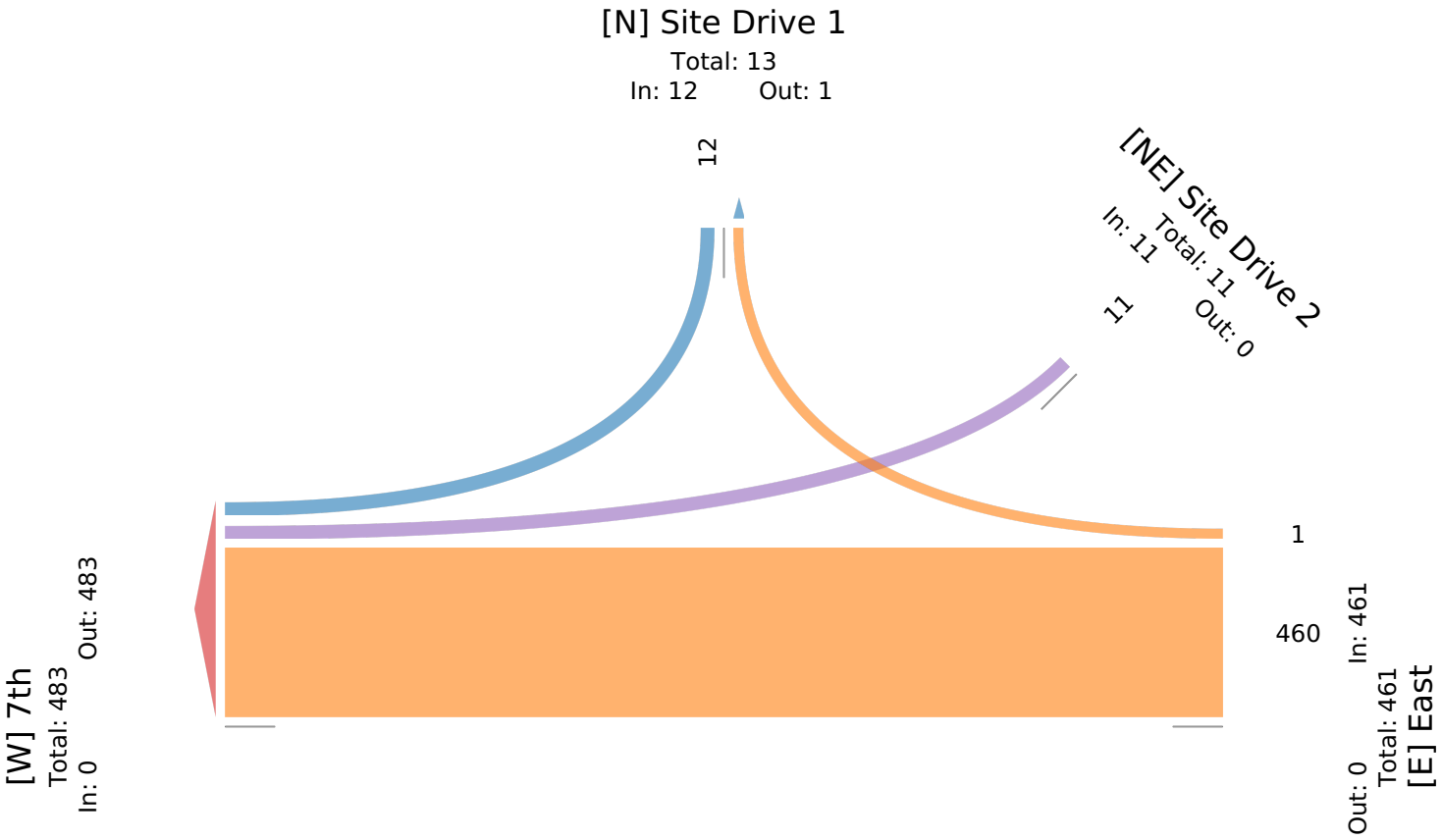
Leg	Site Drive 1				Site Drive 2				East				
Direction	Southbound				Southwestbound				Westbound				
Time	R	HL	U	**App**	HR	BR	U	**App**	HR	R	T	**App**	**Int**
2021-11-18 4:30PM	6	0	0	**6**	0	2	0	**2**	0	0	106	**106**	**114**
4:45PM	0	0	0	**0**	0	3	0	**3**	0	0	106	**106**	**109**
5:00PM	1	0	0	**1**	0	1	0	**1**	0	1	157	**158**	**160**
5:15PM	5	0	0	**5**	0	5	0	**5**	0	0	91	**91**	**101**
Total	12	0	0	**12**	0	11	0	**11**	0	1	460	**461**	**484**
% Approach	100%	0%	0%	**-**	0%	100%	0%	**-**	0%	0.2%	99.8%	**-**	-
% Total	2.5%	0%	0%	**2.5%**	0%	2.3%	0%	**2.3%**	0%	0.2%	95.0%	**95.2%**	-
PHF	0.500	-	-	**0.500**	-	0.550	-	**0.550**	-	0.250	0.732	**0.729**	0.756
Lights	12	0	0	**12**	0	11	0	**11**	0	1	459	**460**	483
% Lights	100%	0%	0%	**100%**	0%	100%	0%	**100%**	0%	100%	99.8%	**99.8%**	99.8%
Articulated Trucks	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	0	0	**0**	0	0	0	**0**	0	0	1	**1**	1
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0.2%	**0.2%**	0.2%

*BR: Bear right, HL: Hard left, HR: Hard right, R: Right, T: Thru, U: U-Turn

2) Site Drive 1/2 & 7th - TMC

Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897933, Location: 36.147947, -95.999959

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



3) Site Drive 3 & 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

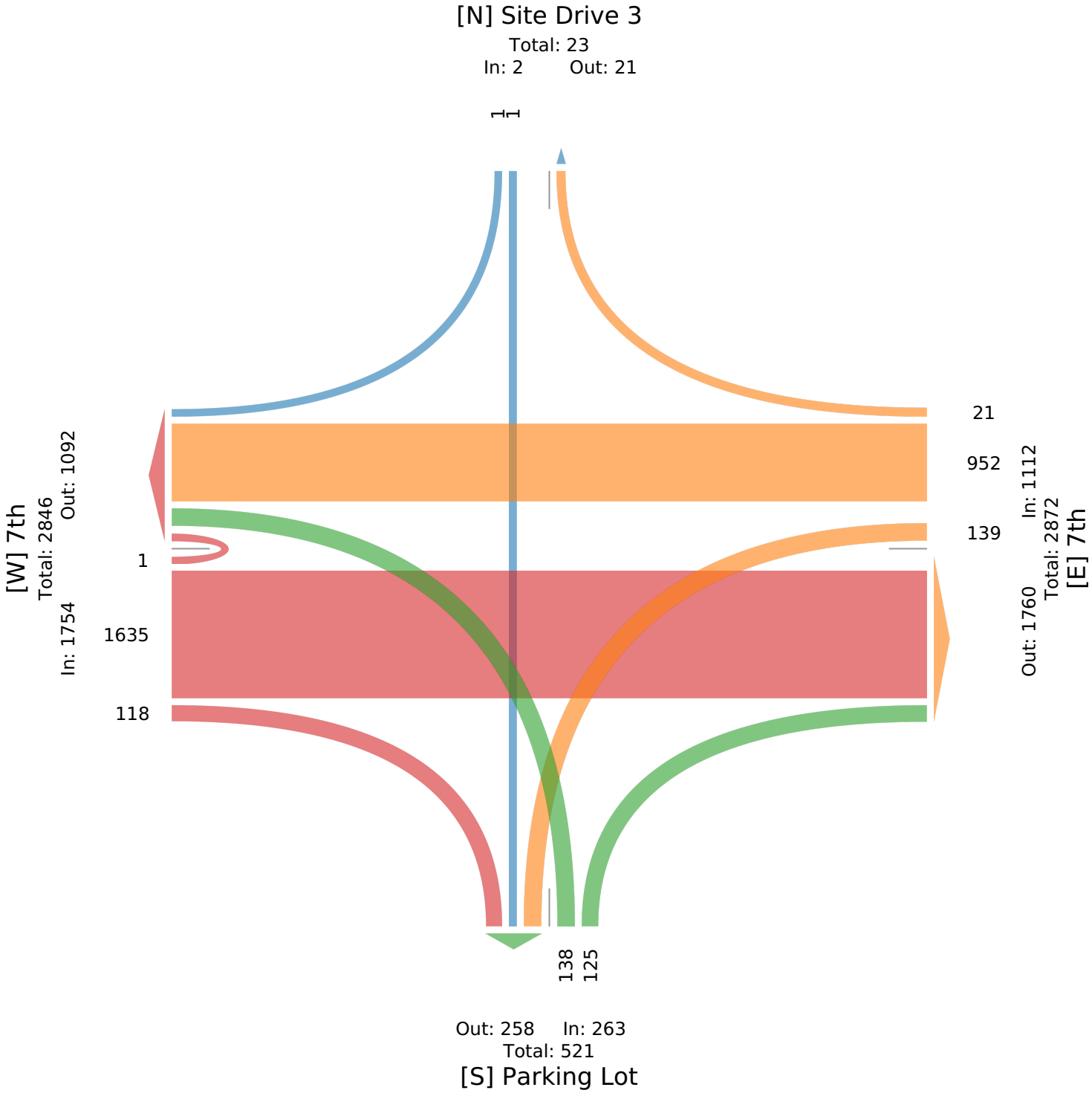
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Site Drive 3					7th					Parking Lot					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2021-11-18 7:00AM	1	0	0	0	**1**	8	83	64	0	**155**	24	0	22	0	**46**	56	445	0	0	**501**	**703**
8:00AM	0	0	0	0	**0**	9	98	32	0	**139**	20	0	16	0	**36**	22	614	0	0	**636**	**811**
3:00PM	0	0	0	0	**0**	2	114	8	0	**124**	14	0	15	0	**29**	2	90	0	1	**93**	**246**
4:00PM	0	1	0	0	**1**	0	320	15	0	**335**	37	0	48	0	**85**	15	203	0	0	**218**	**639**
5:00PM	0	0	0	0	**0**	2	337	20	0	**359**	30	0	37	0	**67**	23	283	0	0	**306**	**732**
Total	1	1	0	0	**2**	21	952	139	0	**1112**	125	0	138	0	**263**	118	1635	0	1	**1754**	**3131**
% Approach	50.0%	50.0%	0%	0%	**-**	1.9%	85.6%	12.5%	0%	**-**	47.5%	0%	52.5%	0%	**-**	6.7%	93.2%	0%	0.1%	**-**	-
% Total	0%	0%	0%	0%	**0.1%**	0.7%	30.4%	4.4%	0%	**35.5%**	4.0%	0%	4.4%	0%	**8.4%**	3.8%	52.2%	0%	0%	**56.0%**	-
Lights	1	1	0	0	**2**	21	937	115	0	**1073**	125	0	138	0	**263**	117	1612	0	1	**1730**	3068
% Lights	100%	100%	0%	0%	**100%**	100%	98.4%	82.7%	0%	**96.5%**	100%	0%	100%	0%	**100%**	99.2%	98.6%	0%	100%	**98.6%**	98.0%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	4	0	0	**4**	4
% Articulated Trucks	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0.2%	0%	0%	**0.2%**	0.1%
Buses and Single-Unit Trucks	0	0	0	0	**0**	0	15	24	0	**39**	0	0	0	0	**0**	1	19	0	0	**20**	59
% Buses and Single-Unit Trucks	0%	0%	0%	0%	**0%**	0%	1.6%	17.3%	0%	**3.5%**	0%	0%	0%	0%	**0%**	0.8%	1.2%	0%	0%	**1.1%**	1.9%

*L: Left, R: Right, T: Thru, U: U-Turn

3) Site Drive 3 & 7th - TMC
Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



3) Site Drive 3 & 7th - TMC

Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

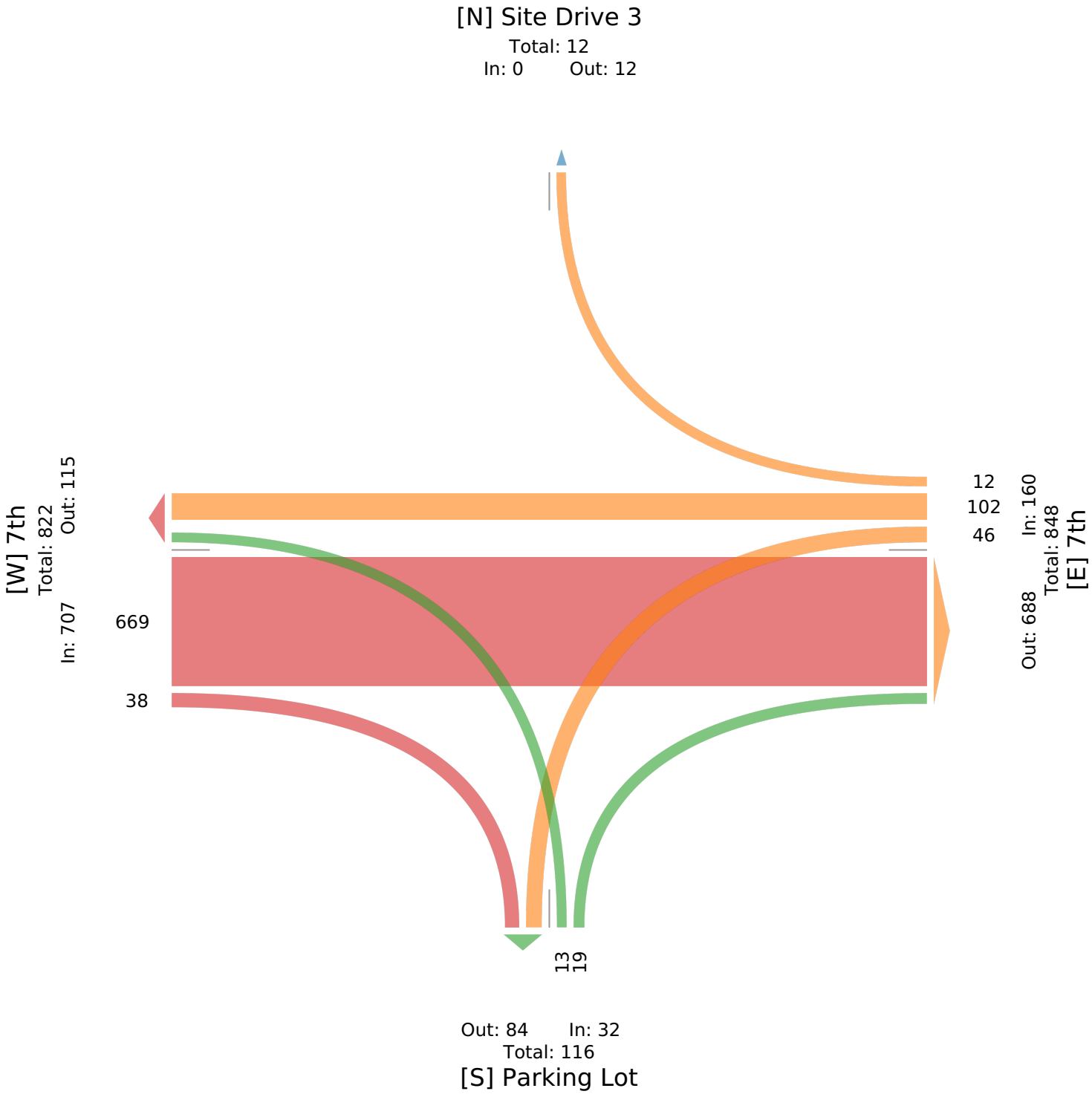
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Site Drive 3					7th					Parking Lot					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:45AM	0	0	0	0	**0**	6	32	20	0	**58**	3	0	2	0	**5**	21	155	0	0	**176**	**239**
8:00AM	0	0	0	0	**0**	1	31	10	0	**42**	5	0	5	0	**10**	6	174	0	0	**180**	**232**
8:15AM	0	0	0	0	**0**	1	17	7	0	**25**	6	0	2	0	**8**	8	188	0	0	**196**	**229**
8:30AM	0	0	0	0	**0**	4	22	9	0	**35**	5	0	4	0	**9**	3	152	0	0	**155**	**199**
Total	0	0	0	0	**0**	12	102	46	0	**160**	19	0	13	0	**32**	38	669	0	0	**707**	**899**
% Approach	0%	0%	0%	0%	**-**	7.5%	63.8%	28.8%	0%	**-**	59.4%	0%	40.6%	0%	**-**	5.4%	94.6%	0%	0%	**-**	-
% Total	0%	0%	0%	0%	**0%**	1.3%	11.3%	5.1%	0%	**17.8%**	2.1%	0%	1.4%	0%	**3.6%**	4.2%	74.4%	0%	0%	**78.6%**	-
PHF	-	-	-	-	**-**	0.500	0.797	0.575	-	**0.690**	0.792	-	0.650	-	**0.800**	0.452	0.890	-	-	**0.902**	0.940
Lights	0	0	0	0	**0**	12	96	41	0	**149**	19	0	13	0	**32**	37	664	0	0	**701**	882
% Lights	0%	0%	0%	0%	**-**	100%	94.1%	89.1%	0%	**93.1%**	100%	0%	100%	0%	**100%**	97.4%	99.3%	0%	0%	**99.2%**	98.1%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	2
% Articulated Trucks	0%	0%	0%	0%	**-**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0.3%	0%	0%	**0.3%**	0.2%
Buses and Single-Unit Trucks	0	0	0	0	**0**	0	6	5	0	**11**	0	0	0	0	**0**	1	3	0	0	**4**	15
% Buses and Single-Unit Trucks	0%	0%	0%	0%	**-**	0%	5.9%	10.9%	0%	**6.9%**	0%	0%	0%	0%	**0%**	2.6%	0.4%	0%	0%	**0.6%**	1.7%

*L: Left, R: Right, T: Thru, U: U-Turn

3) Site Drive 3 & 7th - TMC
Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



3) Site Drive 3 & 7th - TMC

Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

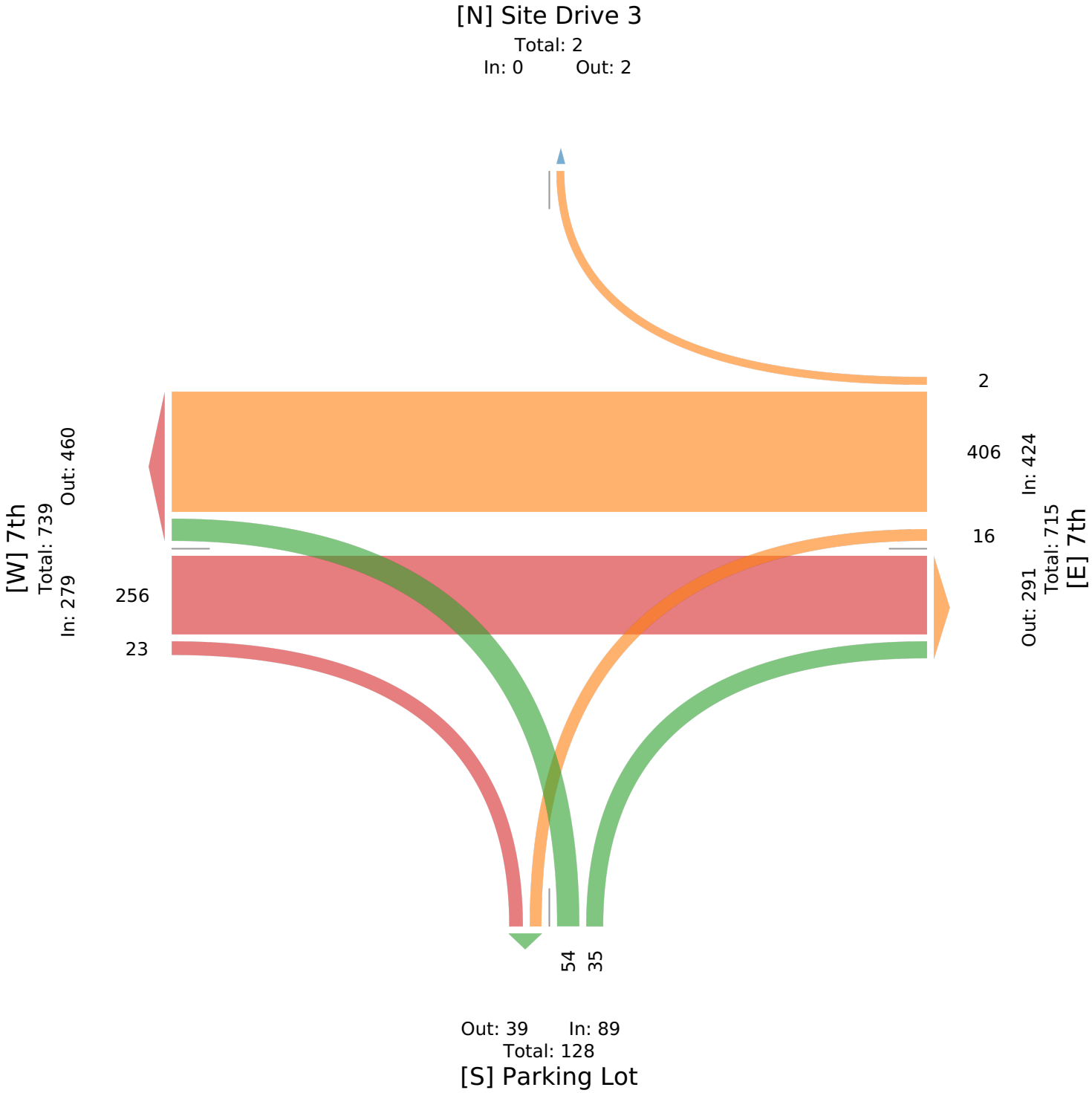
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Site Drive 3					7th					Parking Lot					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 4:30PM	0	0	0	0	**0**	0	89	3	0	**92**	14	0	17	0	**31**	5	53	0	0	**58**	**181**
4:45PM	0	0	0	0	**0**	0	91	5	0	**96**	6	0	13	0	**19**	4	58	0	0	**62**	**177**
5:00PM	0	0	0	0	**0**	2	146	4	0	**152**	9	0	14	0	**23**	10	63	0	0	**73**	**248**
5:15PM	0	0	0	0	**0**	0	80	4	0	**84**	6	0	10	0	**16**	4	82	0	0	**86**	**186**
Total	0	0	0	0	**0**	2	406	16	0	**424**	35	0	54	0	**89**	23	256	0	0	**279**	**792**
% Approach	0%	0%	0%	0%	**-**	0.5%	95.8%	3.8%	0%	**-**	39.3%	0%	60.7%	0%	**-**	8.2%	91.8%	0%	0%	**-**	-
% Total	0%	0%	0%	0%	**0%**	0.3%	51.3%	2.0%	0%	**53.5%**	4.4%	0%	6.8%	0%	**11.2%**	2.9%	32.3%	0%	0%	**35.2%**	-
PHF	-	-	-	-	**-**	0.250	0.695	0.800	-	**0.697**	0.625	-	0.794	-	**0.718**	0.575	0.780	-	-	**0.811**	0.798
Lights	0	0	0	0	**0**	2	405	12	0	**419**	35	0	54	0	**89**	23	250	0	0	**273**	781
% Lights	0%	0%	0%	0%	**-**	100%	99.8%	75.0%	0%	**98.8%**	100%	0%	100%	0%	**100%**	100%	97.7%	0%	0%	**97.8%**	98.6%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	0%	**-**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	0	0	0	**0**	0	1	4	0	**5**	0	0	0	0	**0**	0	6	0	0	**6**	11
% Buses and Single-Unit Trucks	0%	0%	0%	0%	**-**	0%	0.2%	25.0%	0%	**1.2%**	0%	0%	0%	0%	**0%**	0%	2.3%	0%	0%	**2.2%**	1.4%

*L: Left, R: Right, T: Thru, U: U-Turn

3) Site Drive 3 & 7th - TMC
Thu Nov 18, 2021
PM Peak (4:30 PM - 5:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897934, Location: 36.147972, -95.998834

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



4) Houston and 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

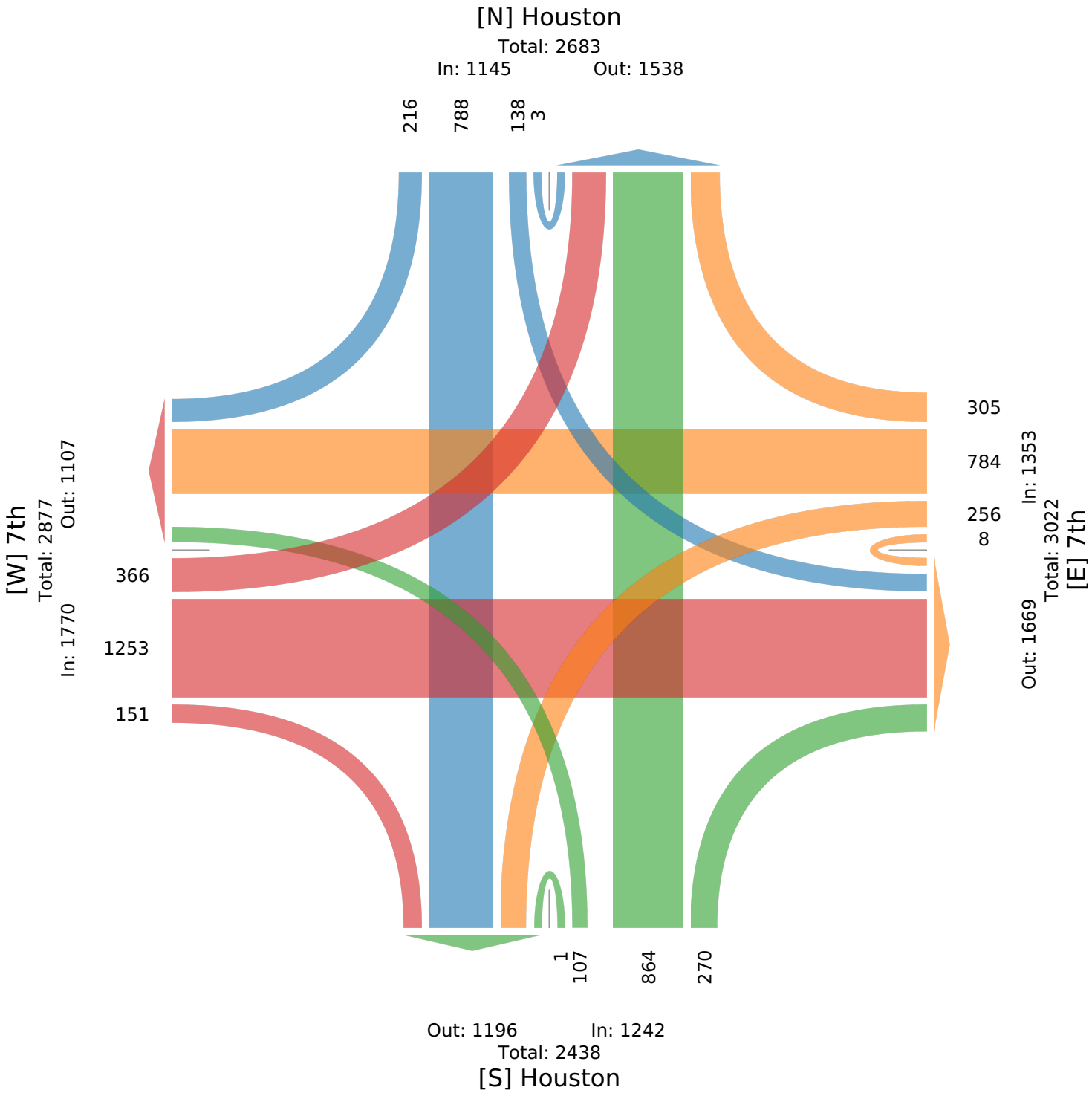
Leg	Houston					7th					Houston					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:00AM	65	183	36	0	**284**	31	71	7	0	**109**	47	186	19	0	**252**	30	353	85	0	**468**	**1113**
8:00AM	48	155	34	1	**238**	59	70	18	3	**150**	89	212	19	0	**320**	48	497	93	0	**638**	**1346**
3:00PM	27	74	13	0	**114**	27	86	22	1	**136**	24	91	11	1	**127**	15	67	22	0	**104**	**481**
4:00PM	42	205	24	0	**271**	73	269	67	2	**411**	50	178	27	0	**255**	31	142	66	0	**239**	**1176**
5:00PM	34	171	31	2	**238**	115	288	142	2	**547**	60	197	31	0	**288**	27	194	100	0	**321**	**1394**
Total	216	788	138	3	**1145**	305	784	256	8	**1353**	270	864	107	1	**1242**	151	1253	366	0	**1770**	**5510**
% Approach	18.9%	68.8%	12.1%	0.3%	**-**	22.5%	57.9%	18.9%	0.6%	**-**	21.7%	69.6%	8.6%	0.1%	**-**	8.5%	70.8%	20.7%	0%	**-**	-
% Total	3.9%	14.3%	2.5%	0.1%	**20.8%**	5.5%	14.2%	4.6%	0.1%	**24.6%**	4.9%	15.7%	1.9%	0%	**22.5%**	2.7%	22.7%	6.6%	0%	**32.1%**	-
Lights	207	778	138	2	**1125**	305	756	255	8	**1324**	268	851	106	1	**1226**	144	1247	354	0	**1745**	5420
% Lights	95.8%	98.7%	100%	66.7%	**98.3%**	100%	96.4%	99.6%	100%	**97.9%**	99.3%	98.5%	99.1%	100%	**98.7%**	95.4%	99.5%	96.7%	0%	**98.6%**	98.4%
Articulated Trucks	0	1	0	0	**1**	0	0	0	0	**0**	1	5	0	0	**6**	1	1	1	0	**3**	10
% Articulated Trucks	0%	0.1%	0%	0%	**0.1%**	0%	0%	0%	0%	**0%**	0.4%	0.6%	0%	0%	**0.5%**	0.7%	0.1%	0.3%	0%	**0.2%**	0.2%
Buses and Single-Unit Trucks	9	9	0	1	**19**	0	28	1	0	**29**	1	8	1	0	**10**	6	5	11	0	**22**	80
% Buses and Single-Unit Trucks	4.2%	1.1%	0%	33.3%	**1.7%**	0%	3.6%	0.4%	0%	**2.1%**	0.4%	0.9%	0.9%	0%	**0.8%**	4.0%	0.4%	3.0%	0%	**1.2%**	1.5%

*L: Left, R: Right, T: Thru, U: U-Turn

4) Houston and 7th - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



4) Houston and 7th - TMC

Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

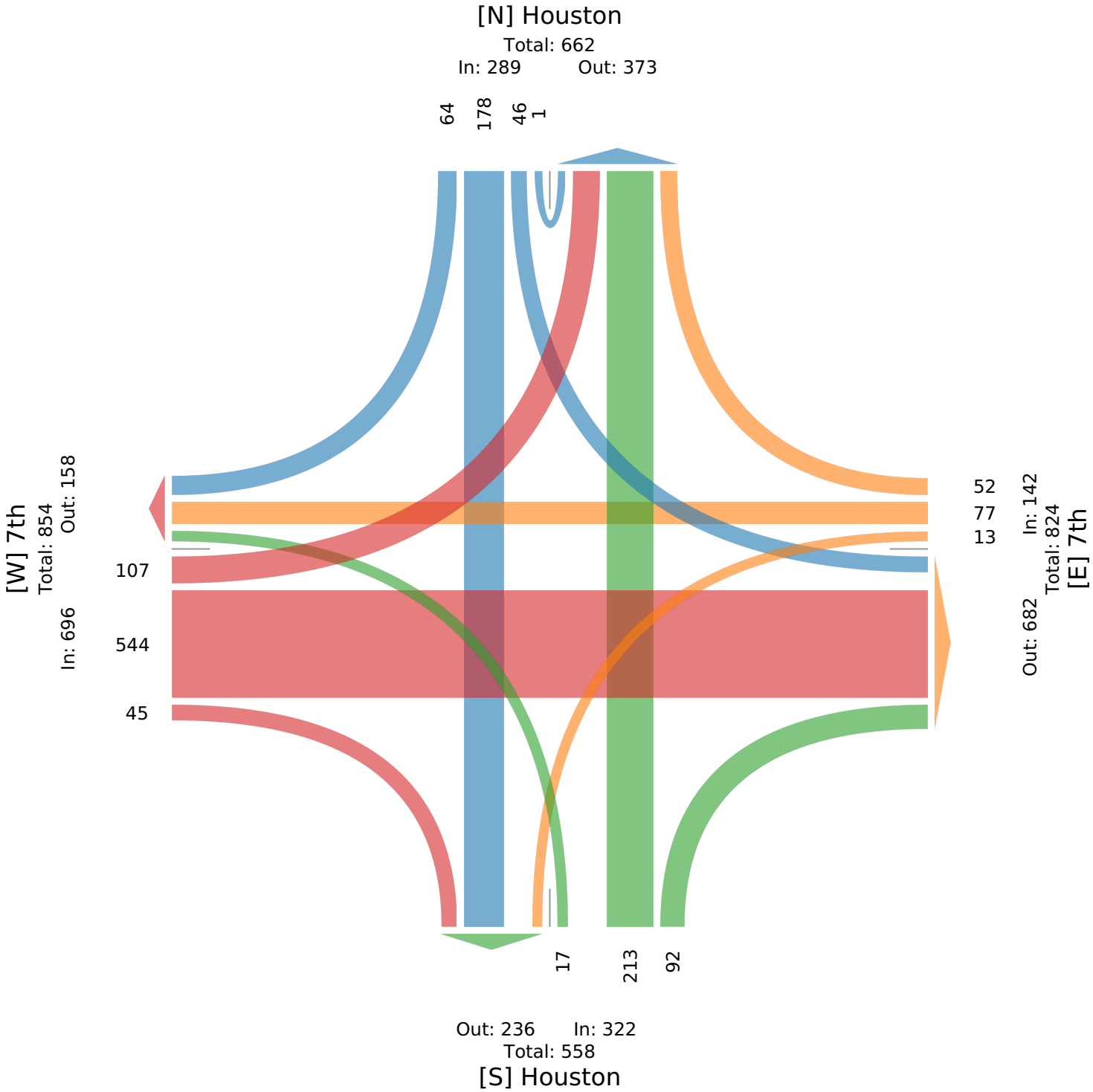
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Houston					7th					Houston					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:45AM	25	66	19	0	**110**	10	26	2	0	**38**	19	61	7	0	**87**	8	128	27	0	**163**	**398**
8:00AM	18	46	11	1	**76**	16	21	2	0	**39**	23	43	2	0	**68**	5	148	27	0	**180**	**363**
8:15AM	7	34	8	0	**49**	14	14	5	0	**33**	26	54	4	0	**84**	14	142	39	0	**195**	**361**
8:30AM	14	32	8	0	**54**	12	16	4	0	**32**	24	55	4	0	**83**	18	126	14	0	**158**	**327**
Total	64	178	46	1	**289**	52	77	13	0	**142**	92	213	17	0	**322**	45	544	107	0	**696**	**1449**
% Approach	22.1%	61.6%	15.9%	0.3%	**-**	36.6%	54.2%	9.2%	0%	**-**	28.6%	66.1%	5.3%	0%	**-**	6.5%	78.2%	15.4%	0%	**-**	-
% Total	4.4%	12.3%	3.2%	0.1%	**19.9%**	3.6%	5.3%	0.9%	0%	**9.8%**	6.3%	14.7%	1.2%	0%	**22.2%**	3.1%	37.5%	7.4%	0%	**48.0%**	-
PHF	0.640	0.674	0.605	0.250	**0.657**	0.813	0.740	0.650	-	**0.910**	0.885	0.873	0.607	-	**0.925**	0.625	0.919	0.686	-	**0.892**	0.910
Lights	60	176	46	1	**283**	52	72	13	0	**137**	92	208	17	0	**317**	45	541	105	0	**691**	1428
% Lights	93.8%	98.9%	100%	100%	**97.9%**	100%	93.5%	100%	0%	**96.5%**	100%	97.7%	100%	0%	**98.4%**	100%	99.4%	98.1%	0%	**99.3%**	98.6%
Articulated Trucks	0	1	0	0	**1**	0	0	0	0	**0**	0	3	0	0	**3**	0	1	1	0	**2**	6
% Articulated Trucks	0%	0.6%	0%	0%	**0.3%**	0%	0%	0%	0%	**0%**	0%	1.4%	0%	0%	**0.9%**	0%	0.2%	0.9%	0%	**0.3%**	0.4%
Buses and Single-Unit Trucks	4	1	0	0	**5**	0	5	0	0	**5**	0	2	0	0	**2**	0	2	1	0	**3**	15
% Buses and Single-Unit Trucks	6.3%	0.6%	0%	0%	**1.7%**	0%	6.5%	0%	0%	**3.5%**	0%	0.9%	0%	0%	**0.6%**	0%	0.4%	0.9%	0%	**0.4%**	1.0%

*L: Left, R: Right, T: Thru, U: U-Turn

4) Houston and 7th - TMC
Thu Nov 18, 2021
AM Peak (7:45 AM - 8:45 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



4) Houston and 7th - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

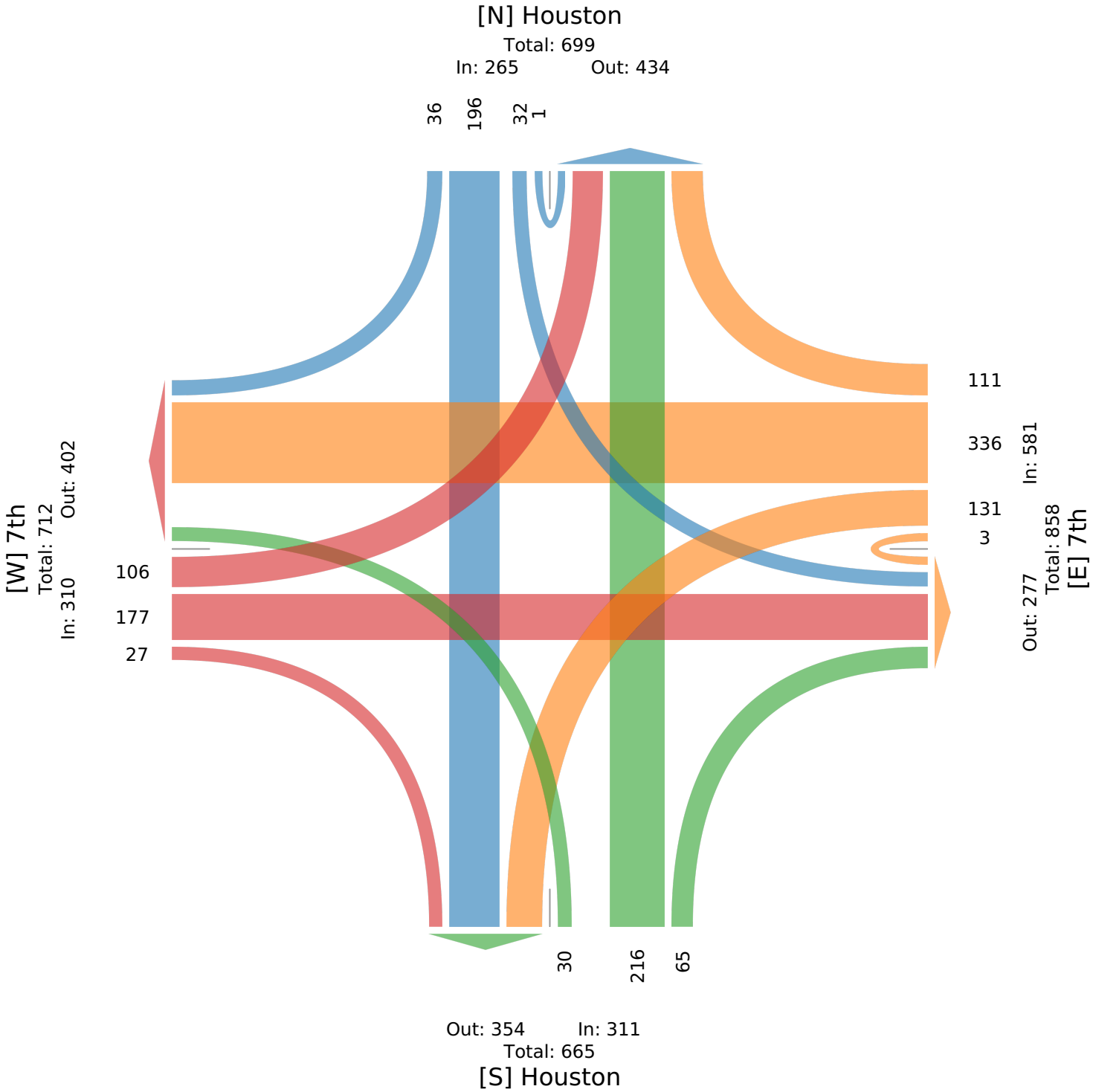
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Houston					7th					Houston					7th					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 4:45PM	9	52	6	0	**67**	18	86	17	1	**122**	14	52	5	0	**71**	7	28	29	0	**64**	**324**
5:00PM	12	65	11	0	**88**	32	125	43	1	**201**	17	53	12	0	**82**	7	52	17	0	**76**	**447**
5:15PM	10	33	7	0	**50**	34	68	39	1	**142**	18	56	6	0	**80**	8	49	33	0	**90**	**362**
5:30PM	5	46	8	1	**60**	27	57	32	0	**116**	16	55	7	0	**78**	5	48	27	0	**80**	**334**
Total	36	196	32	1	**265**	111	336	131	3	**581**	65	216	30	0	**311**	27	177	106	0	**310**	**1467**
% Approach	13.6%	74.0%	12.1%	0.4%	**-**	19.1%	57.8%	22.5%	0.5%	**-**	20.9%	69.5%	9.6%	0%	**-**	8.7%	57.1%	34.2%	0%	**-**	-
% Total	2.5%	13.4%	2.2%	0.1%	**18.1%**	7.6%	22.9%	8.9%	0.2%	**39.6%**	4.4%	14.7%	2.0%	0%	**21.2%**	1.8%	12.1%	7.2%	0%	**21.1%**	-
PHF	0.750	0.754	0.727	0.250	**0.753**	0.816	0.672	0.762	0.750	**0.723**	0.903	0.964	0.625	-	**0.948**	0.844	0.851	0.803	-	**0.861**	0.820
Lights	35	192	32	1	**260**	111	330	130	3	**574**	65	214	30	0	**309**	24	176	103	0	**303**	1446
% Lights	97.2%	98.0%	100%	100%	**98.1%**	100%	98.2%	99.2%	100%	**98.8%**	100%	99.1%	100%	0%	**99.4%**	88.9%	99.4%	97.2%	0%	**97.7%**	98.6%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	1	4	0	0	**5**	0	6	1	0	**7**	0	2	0	0	**2**	3	1	3	0	**7**	21
% Buses and Single-Unit Trucks	2.8%	2.0%	0%	0%	**1.9%**	0%	1.8%	0.8%	0%	**1.2%**	0%	0.9%	0%	0%	**0.6%**	11.1%	0.6%	2.8%	0%	**2.3%**	1.4%

*L: Left, R: Right, T: Thru, U: U-Turn

4) Houston and 7th - TMC
Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897935, Location: 36.147939, -95.998043

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

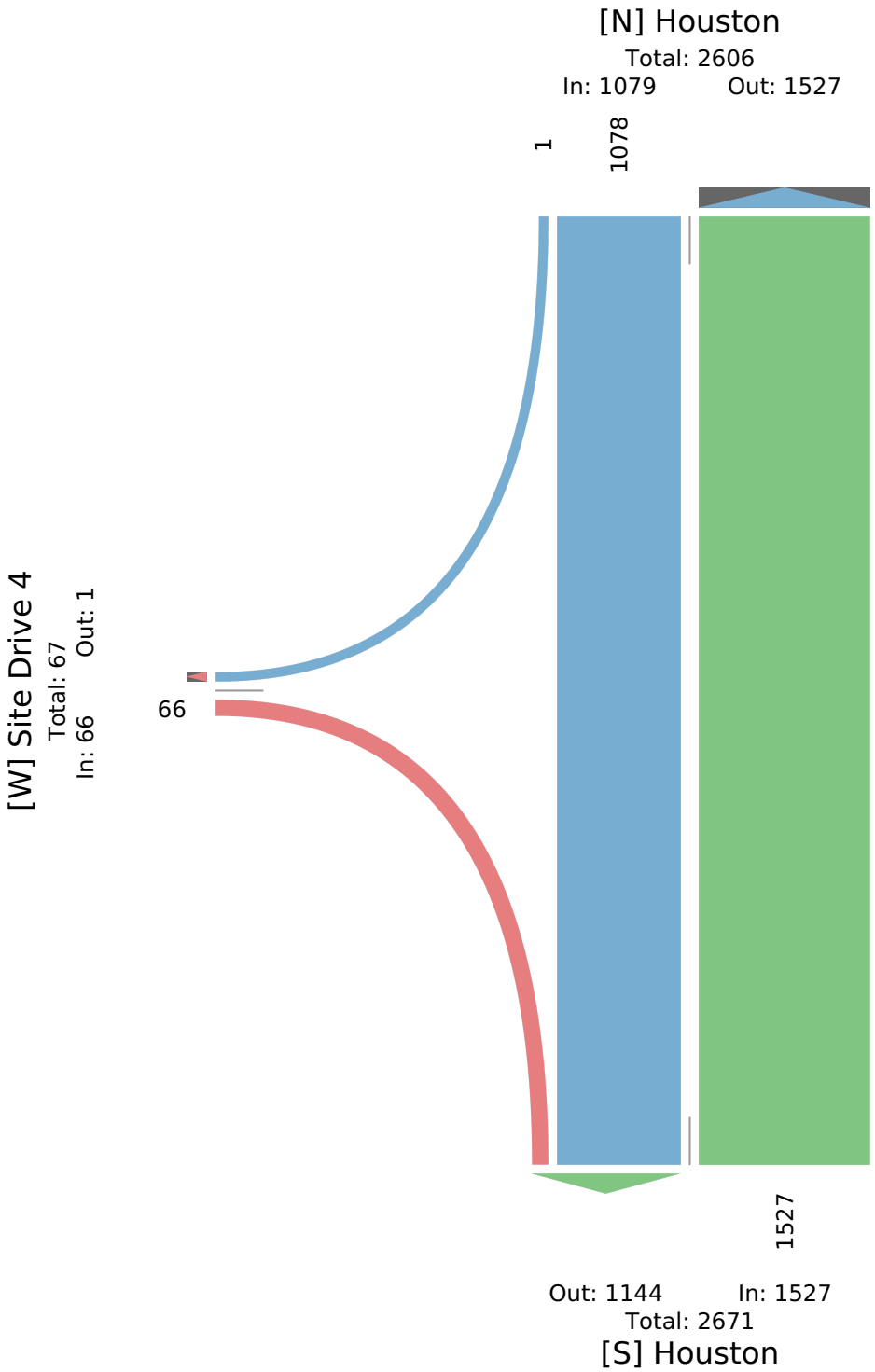
Leg	Houston				Houston				Site Drive 4				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2021-11-18 7:00AM	1	281	0	**282**	289	0	0	**289**	5	0	0	**5**	**576**
8:00AM	0	231	0	**231**	367	0	0	**367**	4	0	0	**4**	**602**
3:00PM	0	111	0	**111**	136	0	0	**136**	4	0	0	**4**	**251**
4:00PM	0	243	0	**243**	320	0	0	**320**	29	0	0	**29**	**592**
5:00PM	0	212	0	**212**	415	0	0	**415**	24	0	0	**24**	**651**
Total	1	1078	0	**1079**	1527	0	0	**1527**	66	0	0	**66**	**2672**
% Approach	0.1%	99.9%	0%	**-**	100%	0%	0%	**-**	100%	0%	0%	**-**	-
% Total	0%	40.3%	0%	**40.4%**	57.1%	0%	0%	**57.1%**	2.5%	0%	0%	**2.5%**	-
Lights	1	1059	0	**1060**	1481	0	0	**1481**	65	0	0	**65**	2606
% Lights	100%	98.2%	0%	**98.2%**	97.0%	0%	0%	**97.0%**	98.5%	0%	0%	**98.5%**	97.5%
Articulated Trucks	0	2	0	**2**	1	0	0	**1**	0	0	0	**0**	3
% Articulated Trucks	0%	0.2%	0%	**0.2%**	0.1%	0%	0%	**0.1%**	0%	0%	0%	**0%**	0.1%
Buses and Single-Unit Trucks	0	17	0	**17**	45	0	0	**45**	1	0	0	**1**	63
% Buses and Single-Unit Trucks	0%	1.6%	0%	**1.6%**	2.9%	0%	0%	**2.9%**	1.5%	0%	0%	**1.5%**	2.4%

*L: Left, R: Right, T: Thru, U: U-Turn

5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

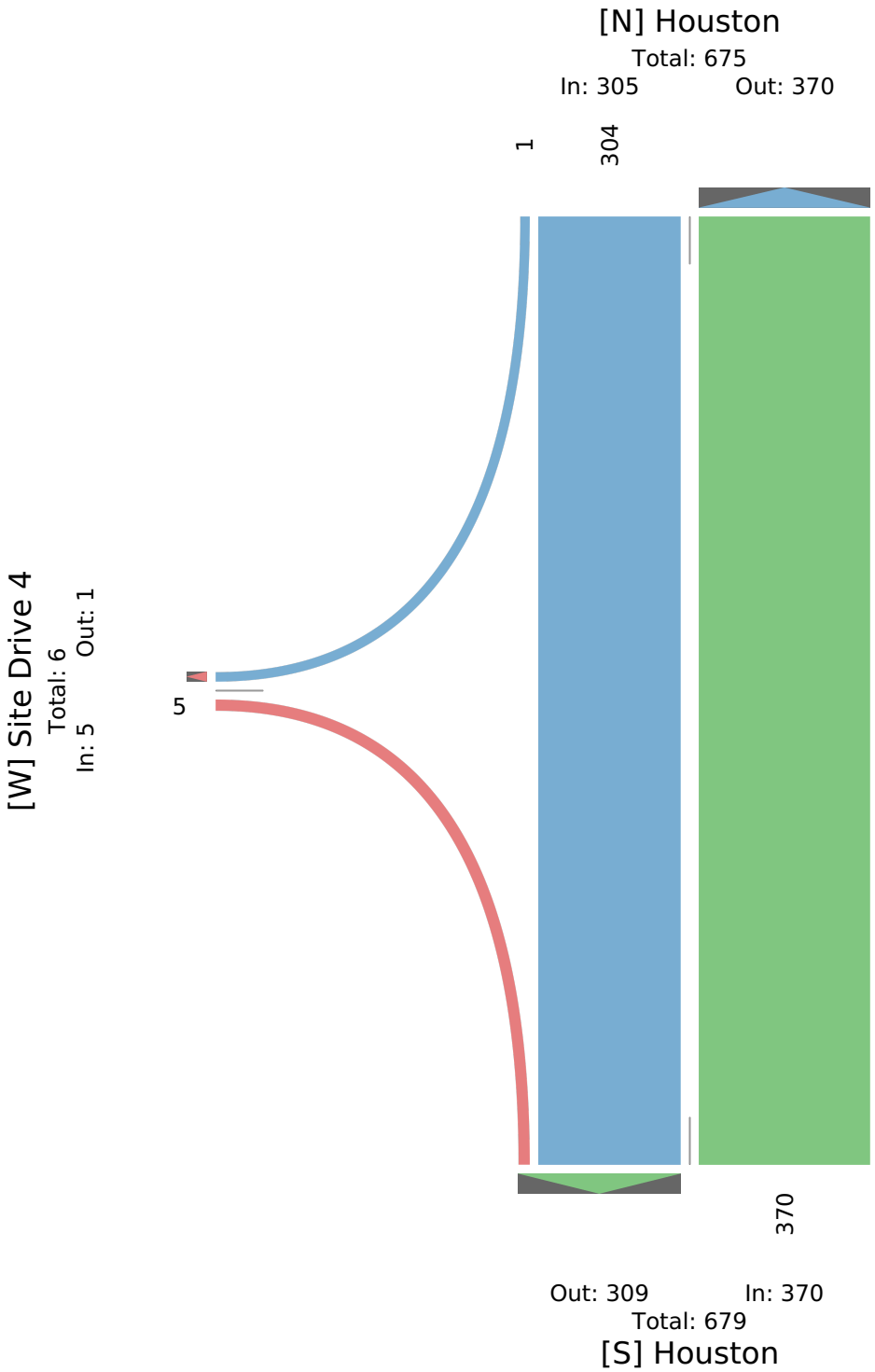
Leg	Houston				Houston				Site Drive 4				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2021-11-18 7:30AM	0	73	0	**73**	85	0	0	**85**	2	0	0	**2**	**160**
7:45AM	1	113	0	**114**	90	0	0	**90**	0	0	0	**0**	**204**
8:00AM	0	69	0	**69**	90	0	0	**90**	2	0	0	**2**	**161**
8:15AM	0	49	0	**49**	105	0	0	**105**	1	0	0	**1**	**155**
Total	1	304	0	**305**	370	0	0	**370**	5	0	0	**5**	**680**
% Approach	0.3%	99.7%	0%	**-**	100%	0%	0%	**-**	100%	0%	0%	**-**	-
% Total	0.1%	44.7%	0%	**44.9%**	54.4%	0%	0%	**54.4%**	0.7%	0%	0%	**0.7%**	-
PHF	0.250	0.673	-	**0.669**	0.881	-	-	**0.881**	0.625	-	-	**0.625**	0.833
Lights	1	298	0	**299**	357	0	0	**357**	5	0	0	**5**	661
% Lights	100%	98.0%	0%	**98.0%**	96.5%	0%	0%	**96.5%**	100%	0%	0%	**100%**	97.2%
Articulated Trucks	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	1
% Articulated Trucks	0%	0.3%	0%	**0.3%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0.1%
Buses and Single-Unit Trucks	0	5	0	**5**	13	0	0	**13**	0	0	0	**0**	18
% Buses and Single-Unit Trucks	0%	1.6%	0%	**1.6%**	3.5%	0%	0%	**3.5%**	0%	0%	0%	**0%**	2.6%

*L: Left, R: Right, T: Thru, U: U-Turn

5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

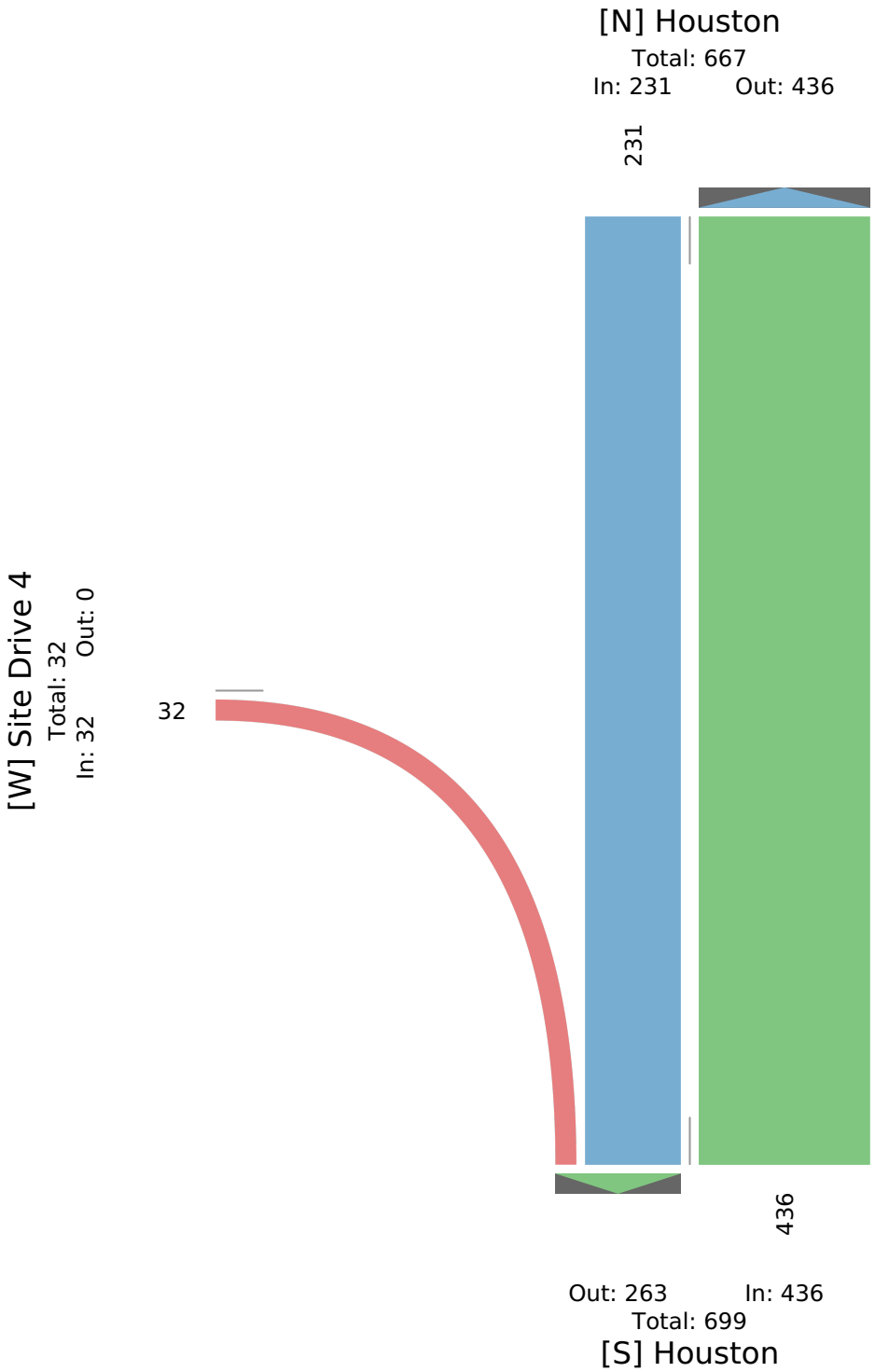
Leg	Houston				Houston				Site Drive 4				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2021-11-18 4:45PM	0	58	0	**58**	104	0	0	**104**	10	0	0	**10**	**172**
5:00PM	0	78	0	**78**	100	0	0	**100**	11	0	0	**11**	**189**
5:15PM	0	50	0	**50**	123	0	0	**123**	4	0	0	**4**	**177**
5:30PM	0	45	0	**45**	109	0	0	**109**	7	0	0	**7**	**161**
Total	0	231	0	**231**	436	0	0	**436**	32	0	0	**32**	**699**
% Approach	0%	100%	0%	**-**	100%	0%	0%	**-**	100%	0%	0%	**-**	-
% Total	0%	33.0%	0%	**33.0%**	62.4%	0%	0%	**62.4%**	4.6%	0%	0%	**4.6%**	-
PHF	-	0.740	-	**0.740**	0.886	-	-	**0.886**	0.727	-	-	**0.727**	0.925
Lights	0	227	0	**227**	430	0	0	**430**	31	0	0	**31**	688
% Lights	0%	98.3%	0%	**98.3%**	98.6%	0%	0%	**98.6%**	96.9%	0%	0%	**96.9%**	98.4%
Articulated Trucks	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	0	4	0	**4**	6	0	0	**6**	1	0	0	**1**	11
% Buses and Single-Unit Trucks	0%	1.7%	0%	**1.7%**	1.4%	0%	0%	**1.4%**	3.1%	0%	0%	**3.1%**	1.6%

*L: Left, R: Right, T: Thru, U: U-Turn

5) Houston and Site Drive 4 - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897936, Location: 36.148741, -95.998427

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

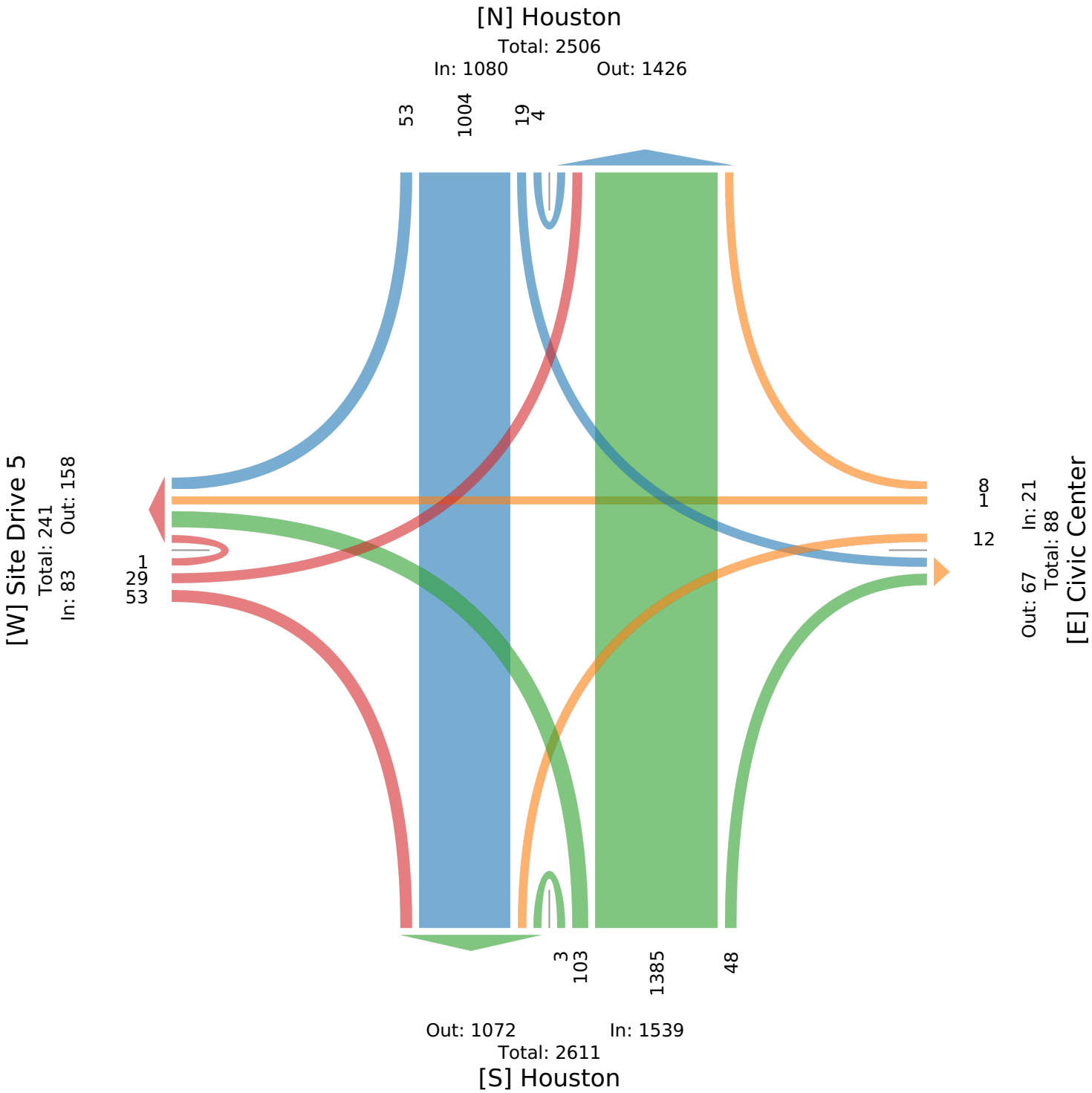
Leg	Houston					Civic Center					Houston					Site Drive 5					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2021-11-18 7:00AM	16	281	4	0	**301**	0	0	0	0	**0**	1	257	28	0	**286**	1	0	0	0	**1**	**588**
8:00AM	23	212	3	1	**239**	0	0	0	0	**0**	4	318	47	0	**369**	17	0	5	0	**22**	**630**
3:00PM	4	104	1	0	**109**	0	0	1	0	**1**	5	127	5	1	**138**	7	0	6	0	**13**	**261**
4:00PM	4	214	5	0	**223**	4	0	6	0	**10**	12	304	12	0	**328**	18	0	8	0	**26**	**587**
5:00PM	6	193	6	3	**208**	4	1	5	0	**10**	26	379	11	2	**418**	10	0	10	1	**21**	**657**
Total	53	1004	19	4	**1080**	8	1	12	0	**21**	48	1385	103	3	**1539**	53	0	29	1	**83**	**2723**
% Approach	4.9%	93.0%	1.8%	0.4%	**-**	38.1%	4.8%	57.1%	0%	**-**	3.1%	90.0%	6.7%	0.2%	**-**	63.9%	0%	34.9%	1.2%	**-**	-
% Total	1.9%	36.9%	0.7%	0.1%	**39.7%**	0.3%	0%	0.4%	0%	**0.8%**	1.8%	50.9%	3.8%	0.1%	**56.5%**	1.9%	0%	1.1%	0%	**3.0%**	-
Lights	53	985	19	4	**1061**	8	1	12	0	**21**	48	1359	102	3	**1512**	52	0	27	1	**80**	2674
% Lights	100%	98.1%	100%	100%	**98.2%**	100%	100%	100%	0%	**100%**	100%	98.1%	99.0%	100%	**98.2%**	98.1%	0%	93.1%	100%	**96.4%**	98.2%
Articulated Trucks	0	3	0	0	**3**	0	0	0	0	**0**	0	1	0	0	**1**	0	0	0	0	**0**	4
% Articulated Trucks	0%	0.3%	0%	0%	**0.3%**	0%	0%	0%	0%	**0%**	0%	0.1%	0%	0%	**0.1%**	0%	0%	0%	0%	**0%**	0.1%
Buses and Single-Unit Trucks	0	16	0	0	**16**	0	0	0	0	**0**	0	25	1	0	**26**	1	0	2	0	**3**	45
% Buses and Single-Unit Trucks	0%	1.6%	0%	0%	**1.5%**	0%	0%	0%	0%	**0%**	0%	1.8%	1.0%	0%	**1.7%**	1.9%	0%	6.9%	0%	**3.6%**	1.7%

*L: Left, R: Right, T: Thru, U: U-Turn

6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

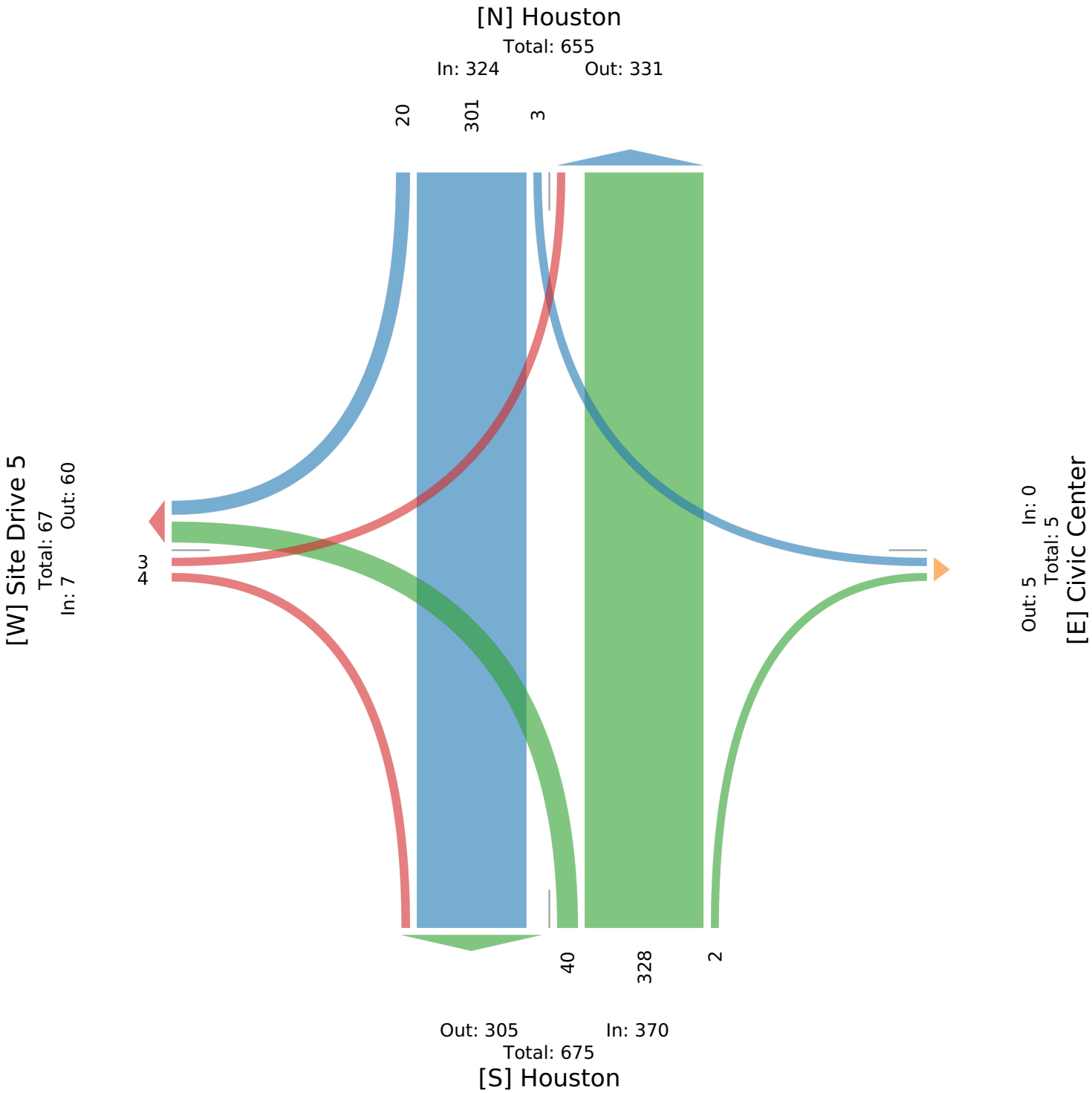
Leg	Houston					Civic Center					Houston					Site Drive 5					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:30AM	3	74	0	0	**77**	0	0	0	0	**0**	1	77	7	0	**85**	0	0	0	0	**0**	**162**
7:45AM	5	113	1	0	**119**	0	0	0	0	**0**	0	75	12	0	**87**	1	0	0	0	**1**	**207**
8:00AM	7	66	2	0	**75**	0	0	0	0	**0**	1	84	8	0	**93**	1	0	1	0	**2**	**170**
8:15AM	5	48	0	0	**53**	0	0	0	0	**0**	0	92	13	0	**105**	2	0	2	0	**4**	**162**
Total	20	301	3	0	**324**	0	0	0	0	**0**	2	328	40	0	**370**	4	0	3	0	**7**	**701**
% Approach	6.2%	92.9%	0.9%	0%	**-**	0%	0%	0%	0%	**-**	0.5%	88.6%	10.8%	0%	**-**	57.1%	0%	42.9%	0%	**-**	-
% Total	2.9%	42.9%	0.4%	0%	**46.2%**	0%	0%	0%	0%	**0%**	0.3%	46.8%	5.7%	0%	**52.8%**	0.6%	0%	0.4%	0%	**1.0%**	-
PHF	0.714	0.666	0.375	-	**0.681**	-	-	-	-	**-**	0.500	0.891	0.769	-	**0.881**	0.500	-	0.375	-	**0.438**	0.847
Lights	20	296	3	0	**319**	0	0	0	0	**0**	2	322	40	0	**364**	4	0	3	0	**7**	690
% Lights	100%	98.3%	100%	0%	**98.5%**	0%	0%	0%	0%	**-**	100%	98.2%	100%	0%	**98.4%**	100%	0%	100%	0%	**100%**	98.4%
Articulated Trucks	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	1
% Articulated Trucks	0%	0.3%	0%	0%	**0.3%**	0%	0%	0%	0%	**-**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.1%
Buses and Single-Unit Trucks	0	4	0	0	**4**	0	0	0	0	**0**	0	6	0	0	**6**	0	0	0	0	**0**	10
% Buses and Single-Unit Trucks	0%	1.3%	0%	0%	**1.2%**	0%	0%	0%	0%	**-**	0%	1.8%	0%	0%	**1.6%**	0%	0%	0%	0%	**0%**	1.4%

*L: Left, R: Right, T: Thru, U: U-Turn

6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

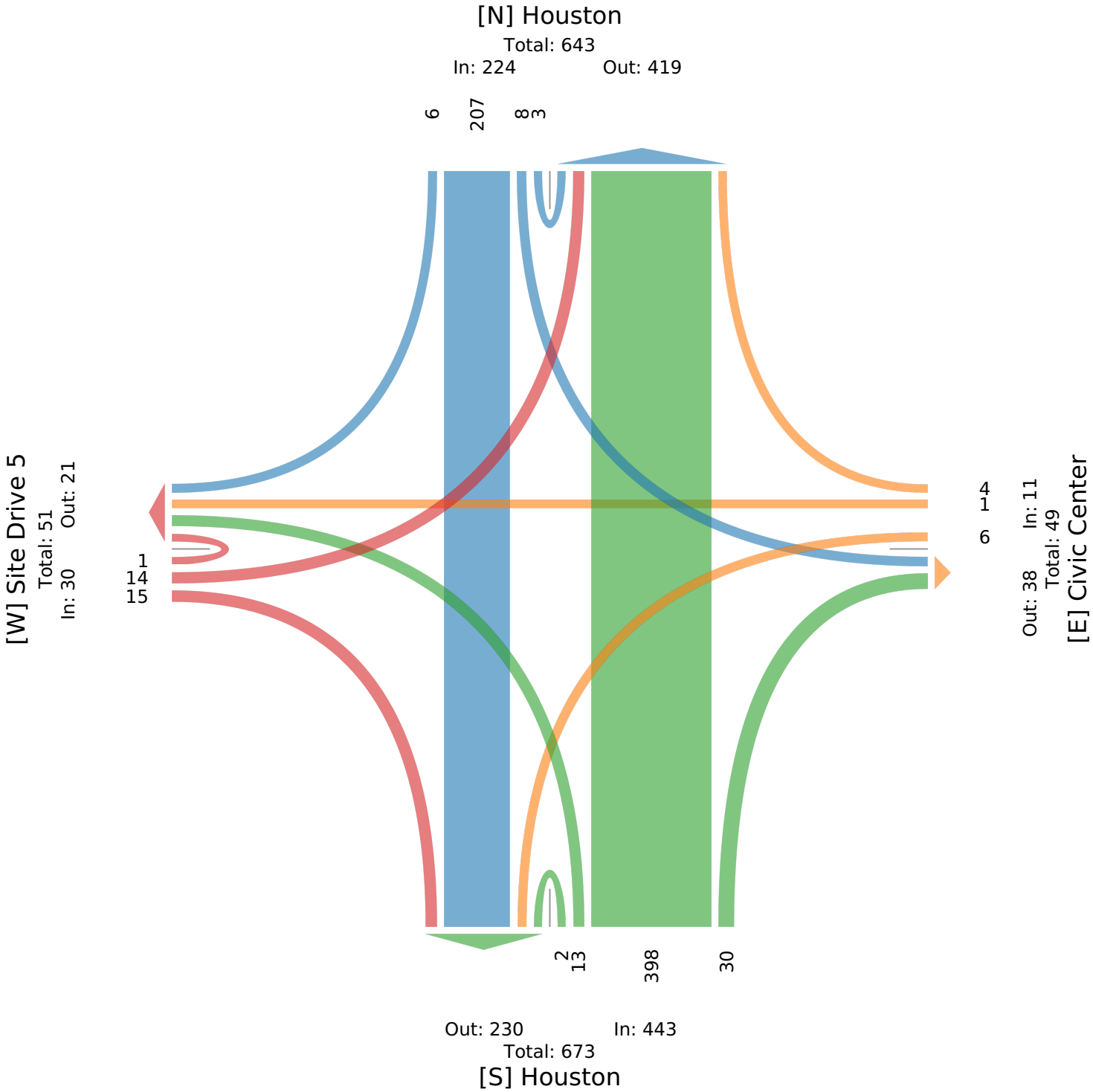
Leg	Houston					Civic Center					Houston					Site Drive 5					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 4:45PM	0	53	2	0	**55**	0	0	1	0	**1**	5	96	5	0	**106**	5	0	6	0	**11**	**173**
5:00PM	2	72	0	0	**74**	0	0	0	0	**0**	4	94	1	1	**100**	6	0	3	0	**9**	**183**
5:15PM	1	42	0	1	**44**	3	1	4	0	**8**	12	110	2	0	**124**	2	0	1	1	**4**	**180**
5:30PM	3	40	6	2	**51**	1	0	1	0	**2**	9	98	5	1	**113**	2	0	4	0	**6**	**172**
Total	6	207	8	3	**224**	4	1	6	0	**11**	30	398	13	2	**443**	15	0	14	1	**30**	**708**
% Approach	2.7%	92.4%	3.6%	1.3%	**-**	36.4%	9.1%	54.5%	0%	**-**	6.8%	89.8%	2.9%	0.5%	**-**	50.0%	0%	46.7%	3.3%	**-**	-
% Total	0.8%	29.2%	1.1%	0.4%	**31.6%**	0.6%	0.1%	0.8%	0%	**1.6%**	4.2%	56.2%	1.8%	0.3%	**62.6%**	2.1%	0%	2.0%	0.1%	**4.2%**	-
PHF	0.500	0.719	0.333	0.375	**0.757**	0.333	0.250	0.375	-	**0.344**	0.625	0.905	0.650	0.500	**0.893**	0.625	-	0.583	0.250	**0.682**	0.967
Lights	6	203	8	3	**220**	4	1	6	0	**11**	30	394	13	2	**439**	15	0	13	1	**29**	699
% Lights	100%	98.1%	100%	100%	**98.2%**	100%	100%	100%	0%	**100%**	100%	99.0%	100%	100%	**99.1%**	100%	0%	92.9%	100%	**96.7%**	98.7%
Articulated Trucks	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	1
% Articulated Trucks	0%	0.5%	0%	0%	**0.4%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.1%
Buses and Single-Unit Trucks	0	3	0	0	**3**	0	0	0	0	**0**	0	4	0	0	**4**	0	0	1	0	**1**	8
% Buses and Single-Unit Trucks	0%	1.4%	0%	0%	**1.3%**	0%	0%	0%	0%	**0%**	0%	1.0%	0%	0%	**0.9%**	0%	0%	7.1%	0%	**3.3%**	1.1%

*L: Left, R: Right, T: Thru, U: U-Turn

6) Houston and Site Drive 5 - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897937, Location: 36.149563, -95.998858

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



7) Houston and 3rd - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

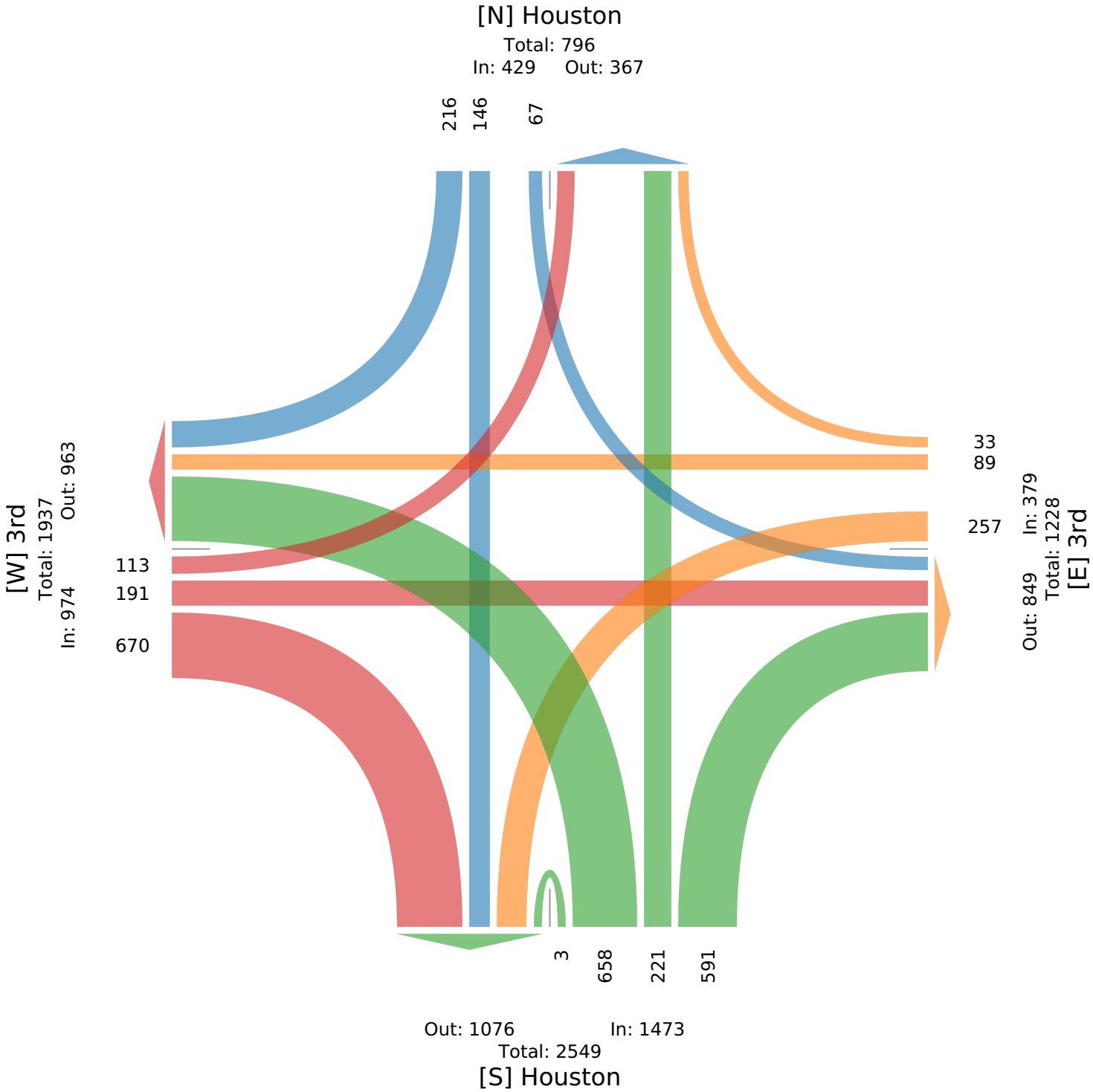
Leg	Houston					3rd					Houston					3rd					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:00AM	23	28	14	0	**65**	2	10	64	0	**76**	123	36	99	0	**258**	206	59	35	0	**300**	**699**
8:00AM	54	34	24	0	**112**	1	18	58	0	**77**	157	50	117	2	**326**	141	40	20	0	**201**	**716**
3:00PM	23	17	5	0	**45**	2	9	23	0	**34**	31	29	69	0	**129**	72	17	20	0	**109**	**317**
4:00PM	53	35	10	0	**98**	18	28	55	0	**101**	89	51	190	0	**330**	135	39	19	0	**193**	**722**
5:00PM	63	32	14	0	**109**	10	24	57	0	**91**	191	55	183	1	**430**	116	36	19	0	**171**	**801**
Total	216	146	67	0	**429**	33	89	257	0	**379**	591	221	658	3	**1473**	670	191	113	0	**974**	**3255**
% Approach	50.3%	34.0%	15.6%	0%	**-**	8.7%	23.5%	67.8%	0%	**-**	40.1%	15.0%	44.7%	0.2%	**-**	68.8%	19.6%	11.6%	0%	**-**	-
% Total	6.6%	4.5%	2.1%	0%	**13.2%**	1.0%	2.7%	7.9%	0%	**11.6%**	18.2%	6.8%	20.2%	0.1%	**45.3%**	20.6%	5.9%	3.5%	0%	**29.9%**	-
Lights	210	143	67	0	**420**	32	85	253	0	**370**	564	214	647	3	**1428**	660	187	112	0	**959**	3177
% Lights	97.2%	97.9%	100%	0%	**97.9%**	97.0%	95.5%	98.4%	0%	**97.6%**	95.4%	96.8%	98.3%	100%	**96.9%**	98.5%	97.9%	99.1%	0%	**98.5%**	97.6%
Articulated Trucks	1	0	0	0	**1**	0	0	0	0	**0**	1	2	0	0	**3**	2	0	1	0	**3**	7
% Articulated Trucks	0.5%	0%	0%	0%	**0.2%**	0%	0%	0%	0%	**0%**	0.2%	0.9%	0%	0%	**0.2%**	0.3%	0%	0.9%	0%	**0.3%**	0.2%
Buses and Single-Unit Trucks	5	3	0	0	**8**	1	4	4	0	**9**	26	5	11	0	**42**	8	4	0	0	**12**	71
% Buses and Single-Unit Trucks	2.3%	2.1%	0%	0%	**1.9%**	3.0%	4.5%	1.6%	0%	**2.4%**	4.4%	2.3%	1.7%	0%	**2.9%**	1.2%	2.1%	0%	0%	**1.2%**	2.2%

*L: Left, R: Right, T: Thru, U: U-Turn

7) Houston and 3rd - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



7) Houston and 3rd - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

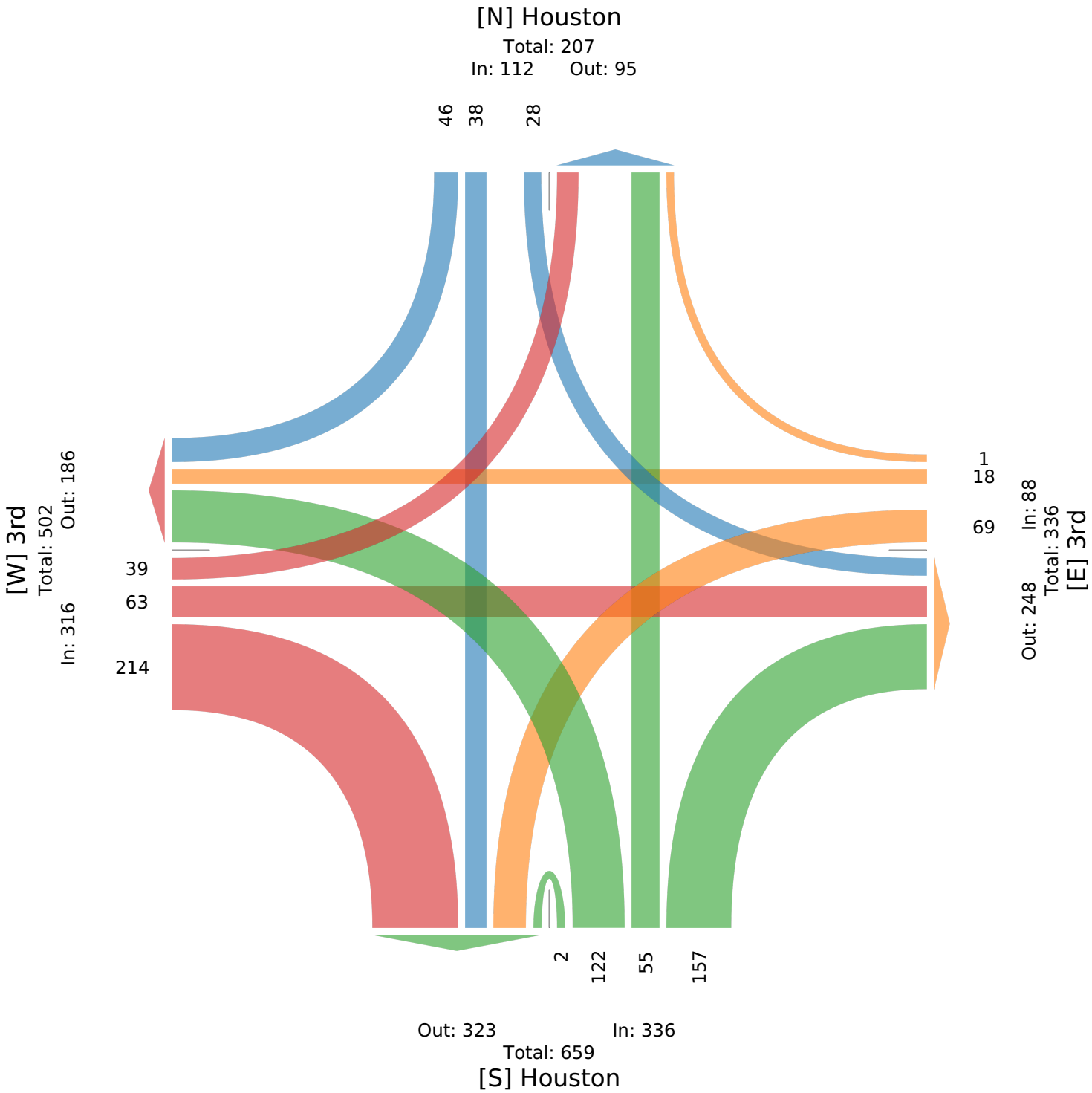
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Houston					3rd					Houston					3rd					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 7:30AM	4	7	6	0	**17**	0	4	20	0	**24**	27	14	32	0	**73**	53	13	12	0	**78**	**192**
7:45AM	9	12	4	0	**25**	0	5	21	0	**26**	35	13	32	0	**80**	83	28	15	0	**126**	**257**
8:00AM	13	11	7	0	**31**	0	2	15	0	**17**	49	15	21	1	**86**	47	10	5	0	**62**	**196**
8:15AM	20	8	11	0	**39**	1	7	13	0	**21**	46	13	37	1	**97**	31	12	7	0	**50**	**207**
Total	46	38	28	0	**112**	1	18	69	0	**88**	157	55	122	2	**336**	214	63	39	0	**316**	**852**
% Approach	41.1%	33.9%	25.0%	0%	**-**	1.1%	20.5%	78.4%	0%	**-**	46.7%	16.4%	36.3%	0.6%	**-**	67.7%	19.9%	12.3%	0%	**-**	-
% Total	5.4%	4.5%	3.3%	0%	**13.1%**	0.1%	2.1%	8.1%	0%	**10.3%**	18.4%	6.5%	14.3%	0.2%	**39.4%**	25.1%	7.4%	4.6%	0%	**37.1%**	-
PHF	0.575	0.792	0.636	-	**0.718**	0.250	0.643	0.821	-	**0.846**	0.801	0.917	0.824	0.500	**0.866**	0.645	0.563	0.650	-	**0.627**	0.829
Lights	42	37	28	0	**107**	1	16	69	0	**86**	155	53	119	2	**329**	210	62	39	0	**311**	833
% Lights	91.3%	97.4%	100%	0%	**95.5%**	100%	88.9%	100%	0%	**97.7%**	98.7%	96.4%	97.5%	100%	**97.9%**	98.1%	98.4%	100%	0%	**98.4%**	97.8%
Articulated Trucks	1	0	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	1	0	0	0	**1**	2
% Articulated Trucks	2.2%	0%	0%	0%	**0.9%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.5%	0%	0%	0%	**0.3%**	0.2%
Buses and Single-Unit Trucks	3	1	0	0	**4**	0	2	0	0	**2**	2	2	3	0	**7**	3	1	0	0	**4**	17
% Buses and Single-Unit Trucks	6.5%	2.6%	0%	0%	**3.6%**	0%	11.1%	0%	0%	**2.3%**	1.3%	3.6%	2.5%	0%	**2.1%**	1.4%	1.6%	0%	0%	**1.3%**	2.0%

*L: Left, R: Right, T: Thru, U: U-Turn

7) Houston and 3rd - TMC
Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



7) Houston and 3rd - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

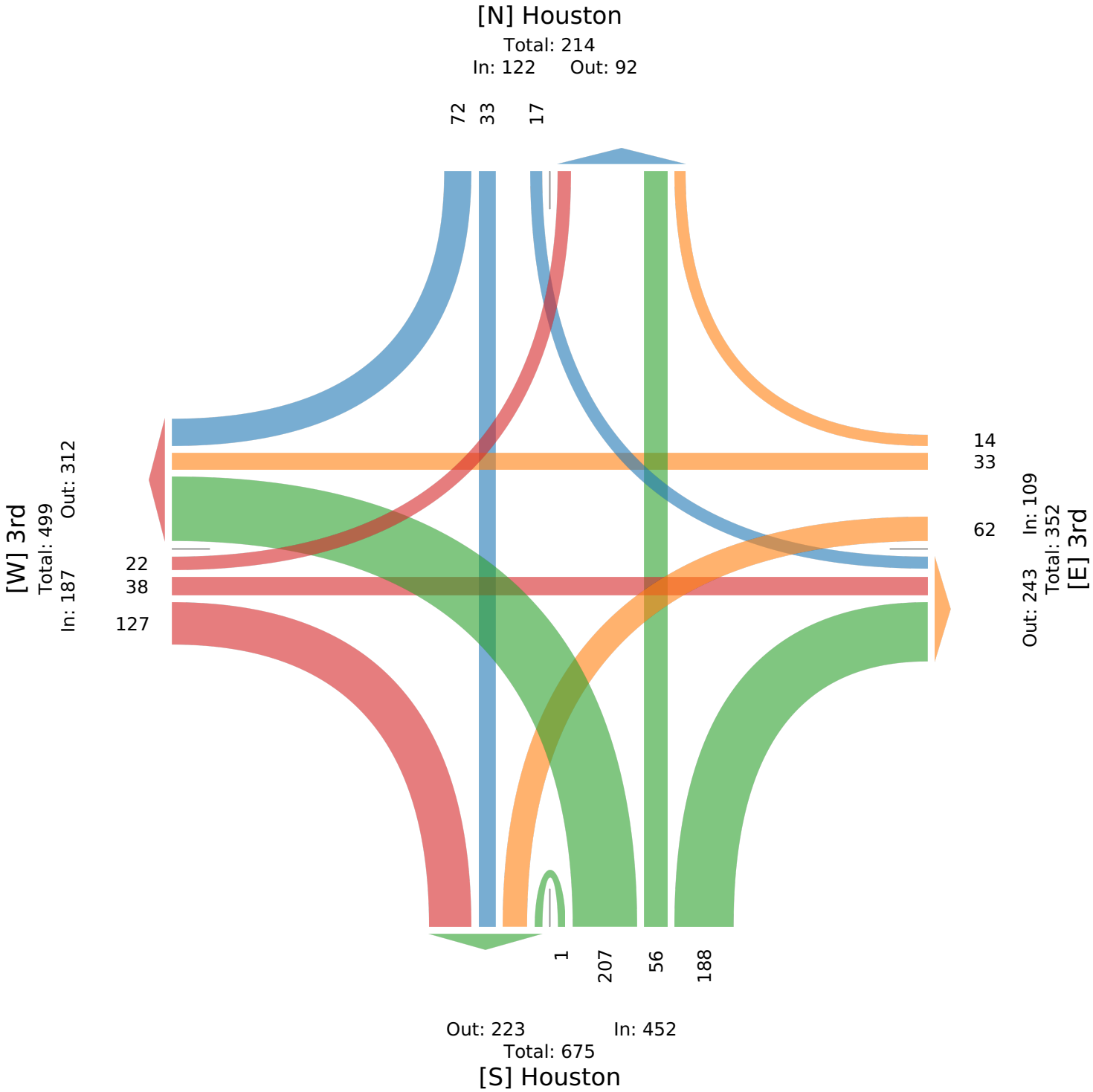
Leg	Houston					3rd					Houston					3rd					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2021-11-18 4:45PM	19	7	4	0	**30**	5	11	15	0	**31**	29	16	59	0	**104**	34	10	6	0	**50**	**215**
5:00PM	21	12	5	0	**38**	8	8	25	0	**41**	30	16	55	0	**101**	36	9	6	0	**51**	**231**
5:15PM	19	8	2	0	**29**	1	8	10	0	**19**	55	12	54	0	**121**	26	11	4	0	**41**	**210**
5:30PM	13	6	6	0	**25**	0	6	12	0	**18**	74	12	39	1	**126**	31	8	6	0	**45**	**214**
Total	72	33	17	0	**122**	14	33	62	0	**109**	188	56	207	1	**452**	127	38	22	0	**187**	**870**
% Approach	59.0%	27.0%	13.9%	0%	**-**	12.8%	30.3%	56.9%	0%	**-**	41.6%	12.4%	45.8%	0.2%	**-**	67.9%	20.3%	11.8%	0%	**-**	-
% Total	8.3%	3.8%	2.0%	0%	**14.0%**	1.6%	3.8%	7.1%	0%	**12.5%**	21.6%	6.4%	23.8%	0.1%	**52.0%**	14.6%	4.4%	2.5%	0%	**21.5%**	-
PHF	0.857	0.688	0.708	-	**0.803**	0.438	0.750	0.620	-	**0.665**	0.635	0.875	0.877	0.250	**0.897**	0.882	0.864	0.917	-	**0.917**	0.942
Lights	72	33	17	0	**122**	14	32	59	0	**105**	184	54	206	1	**445**	126	37	21	0	**184**	856
% Lights	100%	100%	100%	0%	**100%**	100%	97.0%	95.2%	0%	**96.3%**	97.9%	96.4%	99.5%	100%	**98.5%**	99.2%	97.4%	95.5%	0%	**98.4%**	98.4%
Articulated Trucks	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	0	0	1	0	**1**	3
% Articulated Trucks	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0%	3.6%	0%	0%	**0.4%**	0%	0%	4.5%	0%	**0.5%**	0.3%
Buses and Single-Unit Trucks	0	0	0	0	**0**	0	1	3	0	**4**	4	0	1	0	**5**	1	1	0	0	**2**	11
% Buses and Single-Unit Trucks	0%	0%	0%	0%	**0%**	0%	3.0%	4.8%	0%	**3.7%**	2.1%	0%	0.5%	0%	**1.1%**	0.8%	2.6%	0%	0%	**1.1%**	1.3%

*L: Left, R: Right, T: Thru, U: U-Turn

7) Houston and 3rd - TMC

Thu Nov 18, 2021
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897938, Location: 36.15052, -95.99936

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



8) Lawton & Site Drive 6 - TMC

Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

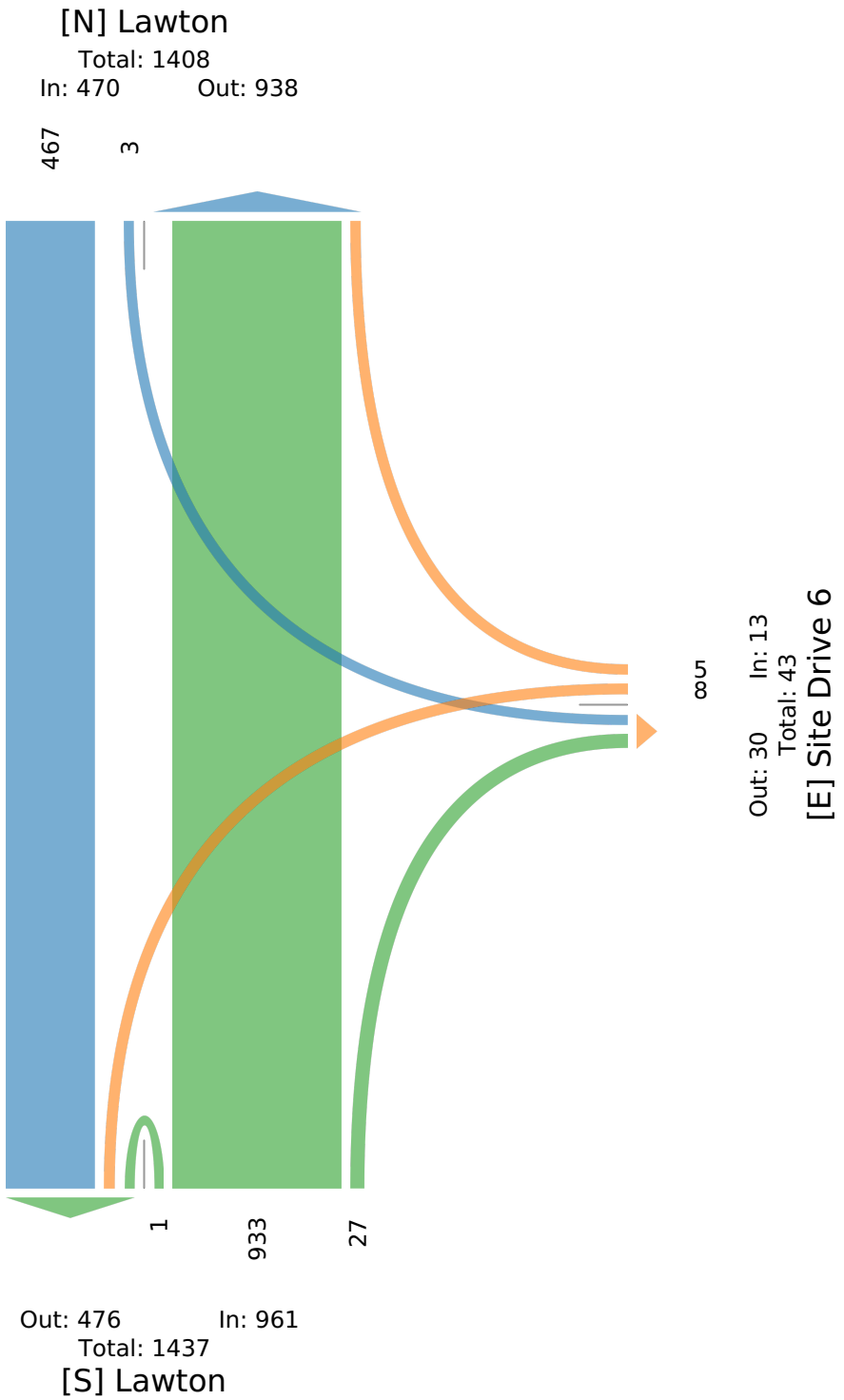
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton				Site Drive 6				Lawton				
Direction	Southbound				Westbound				Northbound				
Time	T	L	U	**App**	R	L	U	**App**	R	T	U	**App**	**Int**
2021-11-18 7:00AM	66	2	0	**68**	0	2	0	**2**	9	221	0	**230**	**300**
8:00AM	65	1	0	**66**	1	0	0	**1**	13	304	0	**317**	**384**
3:00PM	51	0	0	**51**	0	1	0	**1**	0	76	0	**76**	**128**
4:00PM	143	0	0	**143**	2	0	0	**2**	1	133	1	**135**	**280**
5:00PM	142	0	0	**142**	2	5	0	**7**	4	199	0	**203**	**352**
Total	467	3	0	**470**	5	8	0	**13**	27	933	1	**961**	**1444**
% Approach	99.4%	0.6%	0%	**-**	38.5%	61.5%	0%	**-**	2.8%	97.1%	0.1%	**-**	-
% Total	32.3%	0.2%	0%	**32.5%**	0.3%	0.6%	0%	**0.9%**	1.9%	64.6%	0.1%	**66.6%**	-
Lights	453	3	0	**456**	5	8	0	**13**	27	922	1	**950**	1419
% Lights	97.0%	100%	0%	**97.0%**	100%	100%	0%	**100%**	100%	98.8%	100%	**98.9%**	98.3%
Articulated Trucks	2	0	0	**2**	0	0	0	**0**	0	1	0	**1**	3
% Articulated Trucks	0.4%	0%	0%	**0.4%**	0%	0%	0%	**0%**	0%	0.1%	0%	**0.1%**	0.2%
Buses and Single-Unit Trucks	12	0	0	**12**	0	0	0	**0**	0	10	0	**10**	22
% Buses and Single-Unit Trucks	2.6%	0%	0%	**2.6%**	0%	0%	0%	**0%**	0%	1.1%	0%	**1.0%**	1.5%

*L: Left, R: Right, T: Thru, U: U-Turn

8) Lawton & Site Drive 6 - TMC
Thu Nov 18, 2021
Full Length (7 AM-9 AM, 3:30 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



8) Lawton & Site Drive 6 - TMC

Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

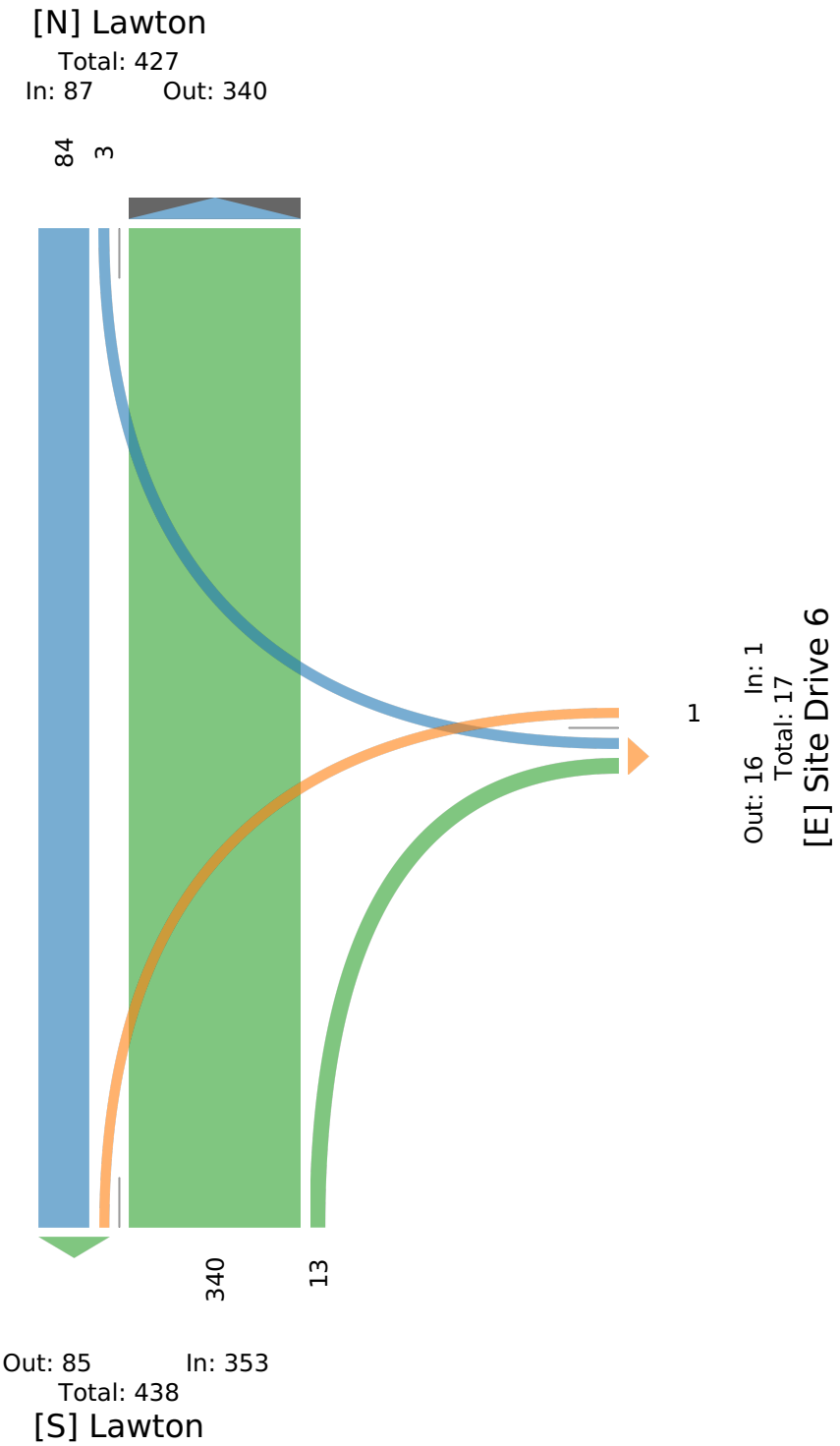
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton				Site Drive 6				Lawton				
Direction	Southbound				Westbound				Northbound				
Time	T	L	U	**App**	R	L	U	**App**	R	T	U	**App**	**Int**
2021-11-18 7:30AM	25	1	0	**26**	0	1	0	**1**	2	52	0	**54**	**81**
7:45AM	20	1	0	**21**	0	0	0	**0**	4	92	0	**96**	**117**
8:00AM	24	1	0	**25**	0	0	0	**0**	5	101	0	**106**	**131**
8:15AM	15	0	0	**15**	0	0	0	**0**	2	95	0	**97**	**112**
Total	84	3	0	**87**	0	1	0	**1**	13	340	0	**353**	**441**
% Approach	96.6%	3.4%	0%	**-**	0%	100%	0%	**-**	3.7%	96.3%	0%	**-**	-
% Total	19.0%	0.7%	0%	**19.7%**	0%	0.2%	0%	**0.2%**	2.9%	77.1%	0%	**80.0%**	-
PHF	0.840	0.750	-	**0.837**	-	0.250	-	**0.250**	0.650	0.842	-	**0.833**	0.842
Lights	80	3	0	**83**	0	1	0	**1**	13	335	0	**348**	432
% Lights	95.2%	100%	0%	**95.4%**	0%	100%	0%	**100%**	100%	98.5%	0%	**98.6%**	98.0%
Articulated Trucks	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	2
% Articulated Trucks	1.2%	0%	0%	**1.1%**	0%	0%	0%	**0%**	0%	0.3%	0%	**0.3%**	0.5%
Buses and Single-Unit Trucks	3	0	0	**3**	0	0	0	**0**	0	4	0	**4**	7
% Buses and Single-Unit Trucks	3.6%	0%	0%	**3.4%**	0%	0%	0%	**0%**	0%	1.2%	0%	**1.1%**	1.6%

*L: Left, R: Right, T: Thru, U: U-Turn

8) Lawton & Site Drive 6 - TMC
Thu Nov 18, 2021
AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



8) Lawton & Site Drive 6 - TMC

Thu Nov 18, 2021
PM Peak (5 PM - 6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

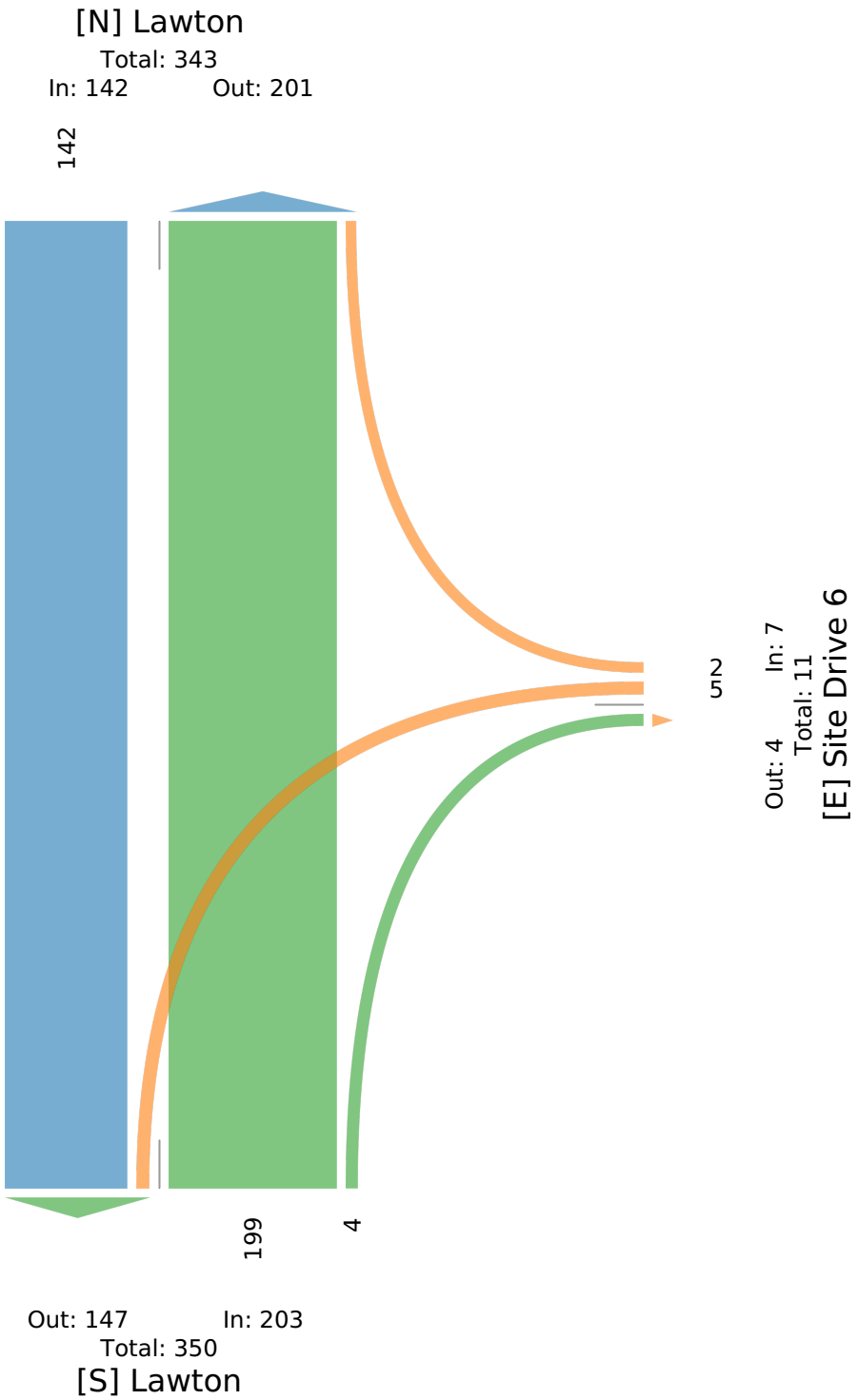
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Lawton				Site Drive 6				Lawton				
Direction	Southbound				Westbound				Northbound				
Time	T	L	U	**App**	R	L	U	**App**	R	T	U	**App**	**Int**
2021-11-18 5:00PM	52	0	0	**52**	2	3	0	**5**	1	48	0	**49**	**106**
5:15PM	35	0	0	**35**	0	2	0	**2**	1	56	0	**57**	**94**
5:30PM	32	0	0	**32**	0	0	0	**0**	1	46	0	**47**	**79**
5:45PM	23	0	0	**23**	0	0	0	**0**	1	49	0	**50**	**73**
Total	142	0	0	**142**	2	5	0	**7**	4	199	0	**203**	**352**
% Approach	100%	0%	0%	**-**	28.6%	71.4%	0%	**-**	2.0%	98.0%	0%	**-**	-
% Total	40.3%	0%	0%	**40.3%**	0.6%	1.4%	0%	**2.0%**	1.1%	56.5%	0%	**57.7%**	-
PHF	0.683	-	-	**0.683**	0.250	0.417	-	**0.350**	1.000	0.888	-	**0.890**	0.830
Lights	141	0	0	**141**	2	5	0	**7**	4	198	0	**202**	350
% Lights	99.3%	0%	0%	**99.3%**	100%	100%	0%	**100%**	100%	99.5%	0%	**99.5%**	99.4%
Articulated Trucks	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
% Articulated Trucks	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%
Buses and Single-Unit Trucks	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	2
% Buses and Single-Unit Trucks	0.7%	0%	0%	**0.7%**	0%	0%	0%	**0%**	0%	0.5%	0%	**0.5%**	0.6%

*L: Left, R: Right, T: Thru, U: U-Turn

8) Lawton & Site Drive 6 - TMC
Thu Nov 18, 2021
PM Peak (5 PM - 6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 897939, Location: 36.149131, -96.000965

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

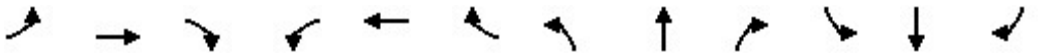


APPENDIX B

Base Conditions Capacity Analysis Reports

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

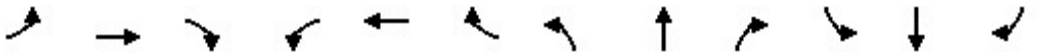
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	63	214	69	18	1	124	55	152	28	41	46
Future Volume (veh/h)	39	63	214	69	18	1	124	55	152	28	41	46
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	66	107	334	84	31	2	151	60	190	39	57	64
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	501	476	403	380	445	29	657	840	712	152	213	206
Arrive On Green	0.05	0.28	0.28	0.06	0.28	0.28	0.09	0.50	0.50	0.37	0.37	0.37
Sat Flow, veh/h	1603	1683	1427	1603	1564	101	1603	1683	1427	264	581	564
Grp Volume(v), veh/h	66	107	334	84	0	33	151	60	190	160	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1665	1603	1683	1427	1409	0	0
Q Serve(g_s), s	2.3	3.9	17.6	2.9	0.0	1.2	4.3	1.5	6.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	3.9	17.6	2.9	0.0	1.2	4.3	1.5	6.2	5.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.24		0.40
Lane Grp Cap(c), veh/h	501	476	403	380	0	474	657	840	712	572	0	0
V/C Ratio(X)	0.13	0.22	0.83	0.22	0.00	0.07	0.23	0.07	0.27	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1024	840	712	889	0	831	1114	840	712	668	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.7	22.0	26.9	18.6	0.0	20.9	12.0	10.4	11.6	17.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	4.4	0.3	0.0	0.1	0.2	0.2	0.9	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.5	6.2	1.1	0.0	0.4	1.5	0.6	2.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	22.3	31.3	18.9	0.0	21.0	12.1	10.6	12.5	18.2	0.0	0.0
LnGrp LOS	B	C	C	B	A	C	B	B	B	B	A	A
Approach Vol, veh/h		507			117			401			160	
Approach Delay, s/veh		27.8			19.5			12.1			18.2	
Approach LOS		C			B			B			B	

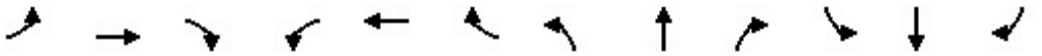
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	27.8		45.0	7.5	27.7	10.6	34.4				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	4.3	3.2		8.2	4.9	19.6	6.3	7.8				
Green Ext Time (p_c), s	0.1	0.2		1.8	0.4	3.1	0.8	1.4				

Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	548	45	13	77	52	17	214	92	47	192	70
Future Volume (vph)	107	548	45	13	77	52	17	214	92	47	192	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3010			3051			3154	1425
Flt Permitted	0.65	1.00	1.00	0.25	1.00			0.93			0.82	1.00
Satd. Flow (perm)	1087	1676	1425	424	3010			2838			2612	1425
Peak-hour factor, PHF	0.69	0.92	0.63	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	155	596	71	20	104	60	20	252	97	71	287	109
RTOR Reduction (vph)	0	0	38	0	32	0	0	58	0	0	0	66
Lane Group Flow (vph)	155	596	33	20	132	0	0	311	0	0	358	43
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	499	770	655	194	1383			1121			1032	563
v/s Ratio Prot		c0.36			0.04							
v/s Ratio Perm	0.14		0.02	0.05				0.11			c0.14	0.03
v/c Ratio	0.31	0.77	0.05	0.10	0.10			0.28			0.35	0.08
Uniform Delay, d1	10.6	14.0	9.3	9.5	9.5			12.7			13.1	11.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.6	7.5	0.1	1.1	0.1			0.6			0.9	0.3
Delay (s)	12.2	21.5	9.4	10.6	9.6			13.4			14.1	12.0
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		18.7			9.7			13.4			13.6	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	588	6	48	62	2	8	153	126	7	75	2
Future Volume (veh/h)	218	588	6	48	62	2	8	153	126	7	75	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	283	639	7	68	77	2	9	168	0	9	90	2
Peak Hour Factor	0.77	0.92	0.92	0.71	0.81	0.84	0.91	0.91	0.91	0.82	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	550	874	10	277	545	14	97	1483		154	1399	31
Arrive On Green	0.17	0.27	0.27	0.07	0.17	0.17	0.49	0.49	0.00	0.49	0.49	0.49
Sat Flow, veh/h	1603	3241	35	1603	3185	82	84	3094	0	192	2845	63
Grp Volume(v), veh/h	283	315	331	68	39	40	95	82	0	53	0	48
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1668	1647	1455	0	1580	0	1520
Q Serve(g_s), s	9.6	12.8	12.8	2.4	1.5	1.5	0.0	2.2	0.0	0.0	0.0	1.2
Cycle Q Clear(g_c), s	9.6	12.8	12.8	2.4	1.5	1.5	2.2	2.2	0.0	1.2	0.0	1.2
Prop In Lane	1.00		0.02	1.00		0.05	0.09		0.00	0.17		0.04
Lane Grp Cap(c), veh/h	550	431	452	277	274	286	865	715		836	0	747
V/C Ratio(X)	0.51	0.73	0.73	0.25	0.14	0.14	0.11	0.11		0.06	0.00	0.06
Avail Cap(c_a), veh/h	1293	1123	1178	953	1348	1406	865	715		836	0	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	23.7	23.7	21.7	25.1	25.1	9.8	9.8	0.0	9.5	0.0	9.5
Incr Delay (d2), s/veh	0.3	2.4	2.3	0.2	0.2	0.2	0.3	0.3	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.8	5.0	0.9	0.6	0.6	0.8	0.7	0.0	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	26.1	26.0	21.8	25.3	25.3	10.0	10.1	0.0	9.6	0.0	9.7
LnGrp LOS	B	C	C	C	C	C	B	B		A	A	A
Approach Vol, veh/h		929			147			177	A		101	
Approach Delay, s/veh		23.5			23.7			10.0			9.7	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	16.7		39.5	8.0	23.7		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	11.6	3.5		4.2	4.4	14.8		3.2				
Green Ext Time (p_c), s	0.4	0.5		1.4	0.1	4.4		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		20.7	
HCM 6th LOS		C	

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	4	0	0	0	40	328	2	3	301	20
Future Vol, veh/h	3	0	4	0	0	0	40	328	2	3	301	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	50	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	25	25	25	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	8	0	0	0	52	369	2	8	449	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	732	955	239	715	968	186	478	0	0	371	0	0
Stage 1	480	480	-	474	474	-	-	-	-	-	-	-
Stage 2	252	475	-	241	494	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	336	257	762	345	252	702	1081	-	-	778	-	-
Stage 1	519	553	-	471	556	-	-	-	-	-	-	-
Stage 2	694	556	-	714	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	321	242	762	326	237	702	1081	-	-	778	-	-
Mov Cap-2 Maneuver	321	242	-	326	237	-	-	-	-	-	-	-
Stage 1	494	547	-	448	529	-	-	-	-	-	-	-
Stage 2	661	529	-	699	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	0	1	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	321	762	-	-	778	-	-
HCM Lane V/C Ratio	0.048	-	-	0.025	0.01	-	-	0.01	-	-
HCM Control Delay (s)	8.5	-	-	16.5	9.8	0	0	9.7	-	-
HCM Lane LOS	A	-	-	C	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	681	38	46	106	13	19
Future Vol, veh/h	681	38	46	106	13	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	70	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	45	58	80	65	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	765	84	79	133	20	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	849	0	1032	425
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	225	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	785	-	229	578
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	791	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	785	-	204	578
Mov Cap-2 Maneuver	-	-	-	-	204	-
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	705	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	578	-	-	785	-
HCM Lane V/C Ratio	0.098	0.042	-	-	0.101	-
HCM Control Delay (s)	24.6	11.5	-	-	10.1	0.3
HCM Lane LOS	C	B	-	-	B	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	719	110	10	0	2
Future Vol, veh/h	0	719	110	10	0	2
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	88	88	76	78	25	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	817	145	13	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	79
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	965
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	965
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	965
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	8.7
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	360	13	3	84	1	0
Future Vol, veh/h	360	13	3	84	1	0
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	84	83	84	84	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	429	16	4	100	4	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	445	0	495	223
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	58	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1112	-	504	780
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	958	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1112	-	502	780
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	954	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1112	-	502
HCM Lane V/C Ratio	-	-	0.003	-	0.008
HCM Control Delay (s)	-	-	8.2	0	12.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	370	304	0
Future Vol, veh/h	0	5	0	370	304	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	25	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	0	420	454	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	227	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	776	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	776	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	776	-
HCM Lane V/C Ratio	-	0.01	-
HCM Control Delay (s)	-	9.7	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	719	119	0	0	1
Future Vol, veh/h	0	719	119	0	0	1
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	88	88	88	88	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	817	135	0	0	4

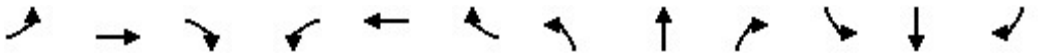
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	68
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	0	981
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	981
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	981
HCM Lane V/C Ratio	-	-	0.004
HCM Control Delay (s)	-	-	8.7
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

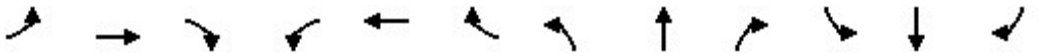
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	38	127	62	33	14	208	56	188	17	46	72
Future Volume (veh/h)	22	38	127	62	33	14	208	56	188	17	46	72
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	23	40	144	100	45	19	236	64	294	21	58	90
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	247	209	356	207	87	782	994	842	101	241	322
Arrive On Green	0.03	0.15	0.15	0.07	0.18	0.18	0.12	0.59	0.59	0.41	0.41	0.41
Sat Flow, veh/h	1603	1683	1427	1603	1124	474	1603	1683	1427	101	582	778
Grp Volume(v), veh/h	23	40	144	100	0	64	236	64	294	169	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1460	0	0
Q Serve(g_s), s	0.8	1.4	6.5	3.4	0.0	2.3	5.0	1.1	7.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	1.4	6.5	3.4	0.0	2.3	5.0	1.1	7.2	4.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	0.12		0.53
Lane Grp Cap(c), veh/h	325	247	209	356	0	294	782	994	842	665	0	0
V/C Ratio(X)	0.07	0.16	0.69	0.28	0.00	0.22	0.30	0.06	0.35	0.25	0.00	0.00
Avail Cap(c_a), veh/h	993	994	842	952	0	944	1293	994	842	809	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.5	25.3	27.4	20.9	0.0	23.5	7.4	5.9	7.2	13.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	4.0	0.4	0.0	0.4	0.2	0.1	1.1	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	2.3	1.3	0.0	0.9	1.5	0.4	2.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	25.6	31.4	21.3	0.0	23.8	7.6	6.0	8.3	13.2	0.0	0.0
LnGrp LOS	C	C	C	C	A	C	A	A	A	B	A	A
Approach Vol, veh/h		207			164			594			169	
Approach Delay, s/veh		29.4			22.3			7.8			13.2	
Approach LOS		C			C			A			B	

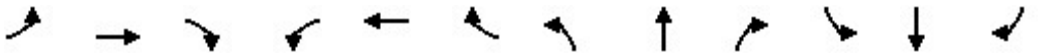
Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	17.5		45.0	7.8	14.9	11.9	33.1
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0
Max Q Clear Time (g_c+I1), s	2.8	4.3		9.2	5.4	8.5	7.0	6.9
Green Ext Time (p_c), s	0.0	0.3		1.4	0.2	0.7	1.4	1.1

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	180	27	134	352	125	30	247	65	33	196	42
Future Volume (vph)	106	180	27	134	352	125	30	247	65	33	196	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3065			3081			3162	1425
Flt Permitted	0.34	1.00	1.00	0.63	1.00			0.91			0.87	1.00
Satd. Flow (perm)	577	1676	1425	1048	3065			2807			2756	1425
Peak-hour factor, PHF	0.80	0.85	0.84	0.76	0.67	0.71	0.95	0.95	0.95	0.75	0.75	0.75
Adj. Flow (vph)	132	212	32	176	525	176	32	260	68	44	261	56
RTOR Reduction (vph)	0	0	16	0	53	0	0	33	0	0	0	37
Lane Group Flow (vph)	133	212	16	176	648	0	0	327	0	0	305	19
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	293	851	723	532	1557			973			955	494
v/s Ratio Prot		0.13			0.21							
v/s Ratio Perm	c0.23		0.01	0.17				c0.12			0.11	0.01
v/c Ratio	0.45	0.25	0.02	0.33	0.42			0.34			0.32	0.04
Uniform Delay, d1	9.8	8.6	7.6	9.0	9.5			15.0			14.9	13.4
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	5.0	0.7	0.1	1.7	0.8			0.9			0.9	0.1
Delay (s)	14.8	9.3	7.6	10.7	10.3			15.9			15.8	13.6
Level of Service	B	A	A	B	B			B			B	B
Approach Delay (s)		11.1			10.4			15.9			15.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	228	6	70	386	23	9	115	68	5	156	6
Future Volume (veh/h)	65	228	6	70	386	23	9	115	68	5	156	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	89	312	8	75	559	33	11	140	0	6	200	8
Peak Hour Factor	0.73	0.73	0.73	0.93	0.69	0.70	0.84	0.82	0.82	0.77	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	772	20	374	783	46	132	1486		72	1543	61
Arrive On Green	0.06	0.24	0.24	0.07	0.25	0.25	0.51	0.51	0.00	0.51	0.51	0.51
Sat Flow, veh/h	1603	3186	82	1603	3069	181	141	2990	0	33	3026	119
Grp Volume(v), veh/h	89	156	164	75	291	301	81	70	0	112	0	102
Grp Sat Flow(s),veh/h/ln	1603	1599	1669	1603	1599	1651	1600	1455	0	1667	0	1510
Q Serve(g_s), s	2.8	5.6	5.7	2.3	11.4	11.4	0.0	1.7	0.0	0.0	0.0	2.4
Cycle Q Clear(g_c), s	2.8	5.6	5.7	2.3	11.4	11.4	1.7	1.7	0.0	2.4	0.0	2.4
Prop In Lane	1.00		0.05	1.00		0.11	0.14		0.00	0.05		0.08
Lane Grp Cap(c), veh/h	267	387	404	374	408	421	875	742		905	0	770
V/C Ratio(X)	0.33	0.40	0.40	0.20	0.71	0.72	0.09	0.09		0.12	0.00	0.13
Avail Cap(c_a), veh/h	1222	1165	1216	1075	1398	1443	875	742		905	0	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.6	21.8	21.8	17.1	23.3	23.3	8.7	8.7	0.0	8.8	0.0	8.8
Incr Delay (d2), s/veh	0.7	0.7	0.7	0.3	2.3	2.3	0.2	0.3	0.0	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.1	2.2	0.8	4.3	4.4	0.6	0.5	0.0	0.8	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	22.5	22.5	17.4	25.6	25.6	8.9	8.9	0.0	9.1	0.0	9.2
LnGrp LOS	B	C	C	B	C	C	A	A		A	A	A
Approach Vol, veh/h		409			667			151	A		214	
Approach Delay, s/veh		21.8			24.7			8.9			9.1	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	22.0		39.5	8.0	21.1		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	4.8	13.4		3.7	4.3	7.7		4.4				
Green Ext Time (p_c), s	0.2	4.1		0.8	0.2	2.0		1.2				

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

Notes

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

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	15	6	2	4	15	433	30	11	218	6
Future Vol, veh/h	15	0	15	6	2	4	15	433	30	11	218	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	50	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	24	18	6	12	19	487	33	33	303	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	609	931	156	760	919	260	311	0	0	520	0	0
Stage 1	373	373	-	542	542	-	-	-	-	-	-	-
Stage 2	236	558	-	218	377	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	404	265	862	322	270	630	1246	-	-	663	-	-
Stage 1	599	617	-	423	518	-	-	-	-	-	-	-
Stage 2	709	510	-	736	614	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	370	248	862	298	253	630	1246	-	-	663	-	-
Mov Cap-2 Maneuver	370	248	-	298	253	-	-	-	-	-	-	-
Stage 1	590	586	-	417	510	-	-	-	-	-	-	-
Stage 2	677	502	-	680	583	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	15.9	0.3	1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1246	-	-	370	862	298	421	663	-	-
HCM Lane V/C Ratio	0.016	-	-	0.07	0.028	0.061	0.043	0.05	-	-
HCM Control Delay (s)	7.9	-	-	15.5	9.3	17.9	13.9	10.7	-	-
HCM Lane LOS	A	-	-	C	A	C	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.2	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	278	23	16	406	54	35
Future Vol, veh/h	278	23	16	406	54	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	70	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	58	80	70	79	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	356	40	20	580	68	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	396	0	706	198
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	330	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1159	-	370	810
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1159	-	361	810
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	810	-	-	1159	-
HCM Lane V/C Ratio	0.189	0.069	-	-	0.017	-
HCM Control Delay (s)	17.3	9.8	-	-	8.2	0.1
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	301	467	4	0	12
Future Vol, veh/h	0	301	467	4	0	12
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	88	88	73	73	25	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	342	640	5	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	323
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	673
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	673
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	673
HCM Lane V/C Ratio	-	-	-	0.036
HCM Control Delay (s)	-	-	-	10.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	199	4	0	162	5	2
Future Vol, veh/h	199	4	0	162	5	2
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	224	4	0	238	14	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	228	0	345	114
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1337	-	626	917
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1337	-	626	917
Mov Cap-2 Maneuver	-	-	-	-	626	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	893	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1337	-	688
HCM Lane V/C Ratio	-	-	-	-	0.029
HCM Control Delay (s)	-	-	0	-	10.4
HCM Lane LOS	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	32	0	478	239	0
Future Vol, veh/h	0	32	0	478	239	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	25	73	25	89	74	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	44	0	537	323	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	162	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	854	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	854	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	854	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	301	460	0	0	11
Future Vol, veh/h	0	301	460	0	0	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	73	73	73	73	25	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	412	630	0	0	20

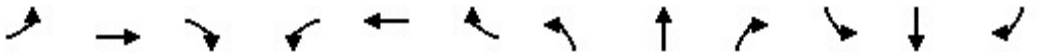
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	315
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	0	681
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	681
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	681
HCM Lane V/C Ratio	-	-	0.029
HCM Control Delay (s)	-	-	10.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

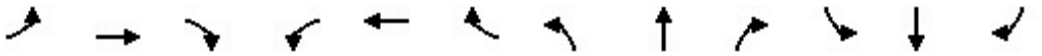
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	76	257	83	22	2	149	66	183	34	50	56
Future Volume (veh/h)	47	76	257	83	22	2	149	66	183	34	50	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	80	129	402	101	37	3	182	72	229	47	69	78
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	540	531	450	387	494	40	592	791	670	137	191	185
Arrive On Green	0.05	0.32	0.32	0.06	0.32	0.32	0.10	0.47	0.47	0.33	0.33	0.33
Sat Flow, veh/h	1603	1683	1427	1603	1536	125	1603	1683	1427	255	579	561
Grp Volume(v), veh/h	80	129	402	101	0	40	182	72	229	194	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1661	1603	1683	1427	1395	0	0
Q Serve(g_s), s	2.8	4.8	22.9	3.6	0.0	1.4	6.0	2.0	8.6	2.3	0.0	0.0
Cycle Q Clear(g_c), s	2.8	4.8	22.9	3.6	0.0	1.4	6.0	2.0	8.6	8.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.24		0.40
Lane Grp Cap(c), veh/h	540	531	450	387	0	534	592	791	670	512	0	0
V/C Ratio(X)	0.15	0.24	0.89	0.26	0.00	0.07	0.31	0.09	0.34	0.38	0.00	0.00
Avail Cap(c_a), veh/h	1024	791	670	853	0	781	998	791	670	622	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	21.6	27.8	17.8	0.0	20.1	14.4	12.5	14.2	21.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	10.3	0.4	0.0	0.1	0.3	0.2	1.4	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.9	8.7	1.3	0.0	0.5	2.1	0.8	2.9	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	21.8	38.1	18.1	0.0	20.1	14.7	12.7	15.6	22.3	0.0	0.0
LnGrp LOS	B	C	D	B	A	C	B	B	B	C	A	A
Approach Vol, veh/h		611			141			483			194	
Approach Delay, s/veh		32.0			18.7			14.8			22.3	
Approach LOS		C			B			B			C	

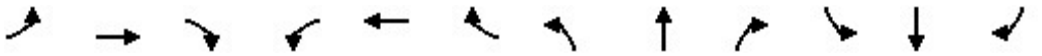
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	32.3		45.0	8.3	31.8	11.9	33.1				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	4.8	3.4		10.6	5.6	24.9	8.0	10.4				
Green Ext Time (p_c), s	0.2	0.2		1.2	0.2	2.0	0.5	1.2				

Intersection Summary												
HCM 6th Ctrl Delay			23.6									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	658	54	16	93	63	21	253	111	57	231	84
Future Volume (vph)	129	658	54	16	93	63	21	253	111	57	231	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3012			3050			3154	1425
Flt Permitted	0.63	1.00	1.00	0.15	1.00			0.92			0.79	1.00
Satd. Flow (perm)	1052	1676	1425	253	3012			2810			2525	1425
Peak-hour factor, PHF	0.69	0.92	0.63	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	187	715	86	25	126	72	25	298	117	86	345	131
RTOR Reduction (vph)	0	0	46	0	39	0	0	59	0	0	0	79
Lane Group Flow (vph)	187	715	40	25	159	0	0	381	0	0	431	52
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	483	770	655	116	1384			1110			997	563
v/s Ratio Prot		c0.43			0.05							
v/s Ratio Perm	0.18		0.03	0.10				0.14			c0.17	0.04
v/c Ratio	0.39	0.93	0.06	0.22	0.11			0.34			0.43	0.09
Uniform Delay, d1	11.0	15.8	9.3	10.0	9.6			13.1			13.7	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	2.3	19.1	0.2	4.2	0.2			0.8			1.4	0.3
Delay (s)	13.3	34.9	9.5	14.3	9.7			14.0			15.0	12.1
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		28.6			10.2			14.0			14.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	713	8	58	75	3	10	184	152	9	90	3
Future Volume (veh/h)	262	713	8	58	75	3	10	184	152	9	90	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	340	775	9	64	93	4	11	202	0	9	108	4
Peak Hour Factor	0.77	0.92	0.92	0.91	0.81	0.84	0.91	0.91	0.91	1.00	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	597	1020	12	262	566	24	92	1389		123	1316	48
Arrive On Green	0.20	0.32	0.32	0.07	0.18	0.18	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	1603	3238	38	1603	3125	134	86	3089	0	150	2854	105
Grp Volume(v), veh/h	340	383	401	64	47	50	114	99	0	63	0	58
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1659	1644	1455	0	1596	0	1513
Q Serve(g_s), s	12.1	16.4	16.4	2.4	1.9	1.9	0.0	3.0	0.0	0.0	0.0	1.6
Cycle Q Clear(g_c), s	12.1	16.4	16.4	2.4	1.9	1.9	3.0	3.0	0.0	1.6	0.0	1.6
Prop In Lane	1.00		0.02	1.00		0.08	0.10		0.00	0.14		0.07
Lane Grp Cap(c), veh/h	597	504	528	262	290	301	810	671		790	0	697
V/C Ratio(X)	0.57	0.76	0.76	0.24	0.16	0.17	0.14	0.15		0.08	0.00	0.08
Avail Cap(c_a), veh/h	1227	1053	1104	896	1264	1311	810	671		790	0	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	23.4	23.4	22.7	26.2	26.2	11.8	11.8	0.0	11.5	0.0	11.5
Incr Delay (d2), s/veh	0.9	2.4	2.3	0.5	0.3	0.3	0.4	0.5	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.1	6.4	0.9	0.7	0.8	1.1	1.0	0.0	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	25.8	25.7	23.2	26.5	26.5	12.2	12.3	0.0	11.7	0.0	11.7
LnGrp LOS	B	C	C	C	C	C	B	B		B	A	B
Approach Vol, veh/h		1124			161			213	A		121	
Approach Delay, s/veh		23.4			25.2			12.2			11.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.2	18.3		39.5	8.0	28.4		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	14.1	3.9		5.0	4.4	18.4		3.6				
Green Ext Time (p_c), s	1.1	0.6		1.2	0.1	5.6		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		21.2	
HCM 6th LOS		C	

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	3	0	0	0	48	394	3	4	362	24
Future Vol, veh/h	4	0	3	0	0	0	48	394	3	4	362	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	50	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	25	25	25	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	6	0	0	0	62	443	3	11	540	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	881	1150	288	861	1166	223	575	0	0	446	0	0
Stage 1	580	580	-	569	569	-	-	-	-	-	-	-
Stage 2	301	570	-	292	597	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	269	197	709	277	193	665	994	-	-	718	-	-
Stage 1	453	498	-	405	504	-	-	-	-	-	-	-
Stage 2	648	504	-	667	490	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	253	182	709	258	178	665	994	-	-	718	-	-
Mov Cap-2 Maneuver	253	182	-	258	178	-	-	-	-	-	-	-
Stage 1	425	491	-	380	473	-	-	-	-	-	-	-
Stage 2	608	473	-	651	483	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	0	1.1	0.2
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	994	-	-	253	709	-	-	718	-	-
HCM Lane V/C Ratio	0.063	-	-	0.042	0.008	-	-	0.015	-	-
HCM Control Delay (s)	8.9	-	-	19.8	10.1	0	0	10.1	-	-
HCM Lane LOS	A	-	-	C	B	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	818	56	56	128	16	23
Future Vol, veh/h	818	56	56	128	16	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	70	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	45	58	80	65	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	919	124	97	160	25	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1043	0	1255	522
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	663	-	164	499
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	663	-	138	499
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	627	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.5	23.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	138	499	-	-	663	-
HCM Lane V/C Ratio	0.178	0.058	-	-	0.146	-
HCM Control Delay (s)	36.7	12.7	-	-	11.4	0.4
HCM Lane LOS	E	B	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	874	132	12	0	3
Future Vol, veh/h	0	874	132	12	0	3
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	88	88	88	88	25	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	993	150	14	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	82
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	961
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	961
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	961
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	8.8
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	432	16	4	101	2	0
Future Vol, veh/h	432	16	4	101	2	0
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	84	83	84	84	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	514	19	5	120	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	533	0	594	267
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1031	-	436	731
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1031	-	434	731
Mov Cap-2 Maneuver	-	-	-	-	434	-
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	940	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.3	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1031	-	434
HCM Lane V/C Ratio	-	-	0.005	-	0.018
HCM Control Delay (s)	-	-	8.5	0	13.5
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	0	445	365	0
Future Vol, veh/h	0	6	0	445	365	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	25	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	0	506	545	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	273	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	725	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	725	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	725	-
HCM Lane V/C Ratio	-	0.013	-
HCM Control Delay (s)	-	10	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

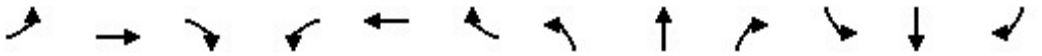
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	874	143	0	0	2
Future Vol, veh/h	0	874	143	0	0	2
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	76	78	88	88	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1121	163	0	0	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	82
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	0	961
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	961
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

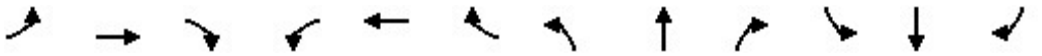
Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	961
HCM Lane V/C Ratio	-	-	0.008
HCM Control Delay (s)	-	-	8.8
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	46	153	75	40	17	250	68	226	21	56	87
Future Volume (veh/h)	27	46	153	75	40	17	250	68	226	21	56	87
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	29	49	174	121	55	23	284	77	353	26	70	109
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	265	225	375	229	96	733	964	817	97	223	297
Arrive On Green	0.03	0.16	0.16	0.08	0.20	0.20	0.14	0.57	0.57	0.39	0.39	0.39
Sat Flow, veh/h	1603	1683	1427	1603	1127	471	1603	1683	1427	100	578	771
Grp Volume(v), veh/h	29	49	174	121	0	78	284	77	353	205	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1449	0	0
Q Serve(g_s), s	1.0	1.8	8.2	4.2	0.0	2.9	6.7	1.4	9.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	1.8	8.2	4.2	0.0	2.9	6.7	1.4	9.8	6.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	0.13		0.53
Lane Grp Cap(c), veh/h	340	265	225	375	0	325	733	964	817	617	0	0
V/C Ratio(X)	0.09	0.18	0.77	0.32	0.00	0.24	0.39	0.08	0.43	0.33	0.00	0.00
Avail Cap(c_a), veh/h	979	964	817	929	0	915	1203	964	817	777	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.4	25.5	28.2	20.3	0.0	23.3	8.5	6.7	8.5	15.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	5.6	0.5	0.0	0.4	0.3	0.2	1.7	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	3.0	1.5	0.0	1.1	2.1	0.5	2.9	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	25.9	33.9	20.7	0.0	23.7	8.9	6.8	10.1	15.5	0.0	0.0
LnGrp LOS	C	C	C	C	A	C	A	A	B	B	A	A
Approach Vol, veh/h		252			199			714			205	
Approach Delay, s/veh		31.1			21.9			9.3			15.5	
Approach LOS		C			C			A			B	

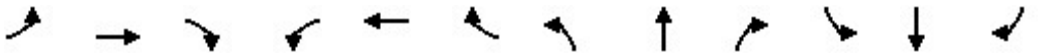
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	19.2		45.0	8.8	16.0	13.1	31.9				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	3.0	4.9		11.8	6.2	10.2	8.7	8.6				
Green Ext Time (p_c), s	0.0	0.4		1.7	0.3	0.8	0.8	1.3				

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	216	33	161	423	150	36	297	78	40	240	51
Future Volume (vph)	128	216	33	161	423	150	36	297	78	40	240	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3066			3081			3163	1425
Flt Permitted	0.28	1.00	1.00	0.59	1.00			0.90			0.85	1.00
Satd. Flow (perm)	464	1676	1425	993	3066			2775			2697	1425
Peak-hour factor, PHF	0.80	0.85	0.84	0.76	0.67	0.71	0.95	0.95	0.95	0.75	0.75	0.75
Adj. Flow (vph)	160	254	39	212	631	211	38	313	82	53	320	68
RTOR Reduction (vph)	0	0	19	0	53	0	0	33	0	0	0	44
Lane Group Flow (vph)	160	254	20	212	789	0	0	400	0	0	373	24
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	235	851	723	504	1557			962			935	494
v/s Ratio Prot		0.15			0.26							
v/s Ratio Perm	c0.34		0.01	0.21				c0.14			0.14	0.02
v/c Ratio	0.68	0.30	0.03	0.42	0.51			0.42			0.40	0.05
Uniform Delay, d1	11.5	8.8	7.6	9.5	10.1			15.5			15.4	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	14.8	0.9	0.1	2.6	1.2			1.3			1.3	0.2
Delay (s)	26.3	9.7	7.7	12.1	11.3			16.8			16.6	13.6
Level of Service	C	A	A	B	B			B			B	B
Approach Delay (s)		15.4			11.5			16.8			16.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	280	8	84	464	28	11	138	82	6	188	8
Future Volume (veh/h)	78	280	8	84	464	28	11	138	82	6	188	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	107	384	11	90	672	40	13	168	0	8	241	10
Peak Hour Factor	0.73	0.73	0.73	0.93	0.69	0.70	0.84	0.82	0.82	0.77	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	936	27	383	904	54	121	1381		70	1429	58
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.47	0.47	0.00	0.47	0.47	0.47
Sat Flow, veh/h	1603	3175	91	1603	3067	182	138	2987	0	39	3011	123
Grp Volume(v), veh/h	107	193	202	90	350	362	97	84	0	136	0	123
Grp Sat Flow(s),veh/h/ln	1603	1599	1667	1603	1599	1650	1593	1455	0	1663	0	1510
Q Serve(g_s), s	3.4	7.1	7.2	2.8	14.6	14.6	0.0	2.4	0.0	0.0	0.0	3.4
Cycle Q Clear(g_c), s	3.4	7.1	7.2	2.8	14.6	14.6	2.4	2.4	0.0	3.4	0.0	3.4
Prop In Lane	1.00		0.05	1.00		0.11	0.13		0.00	0.06		0.08
Lane Grp Cap(c), veh/h	271	471	491	383	471	486	811	690		841	0	716
V/C Ratio(X)	0.39	0.41	0.41	0.24	0.74	0.74	0.12	0.12		0.16	0.00	0.17
Avail Cap(c_a), veh/h	1140	1084	1130	1034	1301	1343	811	690		841	0	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	20.9	20.9	16.3	23.5	23.5	10.8	10.8	0.0	11.1	0.0	11.1
Incr Delay (d2), s/veh	0.9	0.6	0.6	0.3	2.3	2.3	0.3	0.4	0.0	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.6	2.7	1.0	5.5	5.7	0.9	0.8	0.0	1.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	21.4	21.4	16.6	25.8	25.8	11.1	11.2	0.0	11.5	0.0	11.6
LnGrp LOS	B	C	C	B	C	C	B	B		B	A	B
Approach Vol, veh/h		502			802			181	A		259	
Approach Delay, s/veh		20.8			24.8			11.1			11.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	26.2		39.5	8.0	26.2		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	5.4	16.6		4.4	4.8	9.2		5.4				
Green Ext Time (p_c), s	0.3	5.1		1.0	0.2	2.5		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		20.3	
HCM 6th LOS		C	

Notes

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

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	0	22	8	3	5	18	520	36	14	262	8
Future Vol, veh/h	18	0	22	8	3	5	18	520	36	14	262	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	50	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	0	35	24	9	15	23	584	40	42	364	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	738	1124	188	916	1109	312	375	0	0	624	0	0
Stage 1	454	454	-	650	650	-	-	-	-	-	-	-
Stage 2	284	670	-	266	459	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	333	204	822	255	208	583	1180	-	-	592	-	-
Stage 1	537	568	-	356	463	-	-	-	-	-	-	-
Stage 2	664	454	-	691	565	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	291	186	822	227	189	583	1180	-	-	592	-	-
Mov Cap-2 Maneuver	291	186	-	227	189	-	-	-	-	-	-	-
Stage 1	527	528	-	349	454	-	-	-	-	-	-	-
Stage 2	621	445	-	615	525	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	19.8	0.3	1.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1180	-	-	291	822	227	327	592	-	-
HCM Lane V/C Ratio	0.02	-	-	0.107	0.042	0.107	0.074	0.072	-	-
HCM Control Delay (s)	8.1	-	-	18.8	9.6	22.7	16.9	11.6	-	-
HCM Lane LOS	A	-	-	C	A	C	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0.4	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	334	34	20	488	65	42
Future Vol, veh/h	334	34	20	488	65	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	70	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	58	80	70	79	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	428	59	25	697	82	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	487	0	857	244
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	399	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1072	-	296	757
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	647	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1072	-	285	757
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	622	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	285	757	-	-	1072	-
HCM Lane V/C Ratio	0.289	0.088	-	-	0.023	-
HCM Control Delay (s)	22.7	10.2	-	-	8.4	0.1
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	368	561	5	0	15
Future Vol, veh/h	0	368	561	5	0	15
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	88	88	73	73	25	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	418	768	7	0	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	388
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	611
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	611
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	611
HCM Lane V/C Ratio	-	-	-	0.049
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.5

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	239	5	0	195	6	3
Future Vol, veh/h	239	5	0	195	6	3
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	269	6	0	287	17	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	416	138
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	144	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1285	-	565	885
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	565	885
Mov Cap-2 Maneuver	-	-	-	-	565	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	868	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1285	-	642
HCM Lane V/C Ratio	-	-	-	-	0.04
HCM Control Delay (s)	-	-	0	-	10.8
HCM Lane LOS	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	39	0	574	292	0
Future Vol, veh/h	0	39	0	574	292	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	25	73	25	89	74	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	53	0	645	395	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	198	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	810	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	810	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	810	-
HCM Lane V/C Ratio	-	0.066	-
HCM Control Delay (s)	-	9.8	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	368	552	0	0	14
Future Vol, veh/h	0	368	552	0	0	14
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	88	88	88	88	25	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	418	627	0	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	314
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	0	682
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	682
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

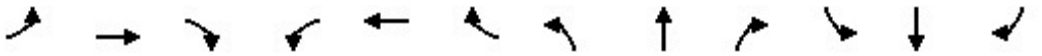
Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	682
HCM Lane V/C Ratio	-	-	0.021
HCM Control Delay (s)	-	-	10.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

APPENDIX C

Base + VA Hospital Traffic Capacity Analysis Reports

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

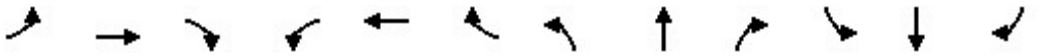
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	63	205	116	18	1	126	78	155	28	43	46
Future Volume (veh/h)	39	63	205	116	18	1	126	78	155	28	43	46
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	66	107	320	141	31	2	154	85	194	39	60	64
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	487	437	370	408	457	29	645	831	704	149	218	201
Arrive On Green	0.05	0.26	0.26	0.09	0.29	0.29	0.09	0.49	0.49	0.37	0.37	0.37
Sat Flow, veh/h	1603	1683	1427	1603	1564	101	1603	1683	1427	257	596	551
Grp Volume(v), veh/h	66	107	320	141	0	33	154	85	194	163	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1665	1603	1683	1427	1404	0	0
Q Serve(g_s), s	2.4	4.1	17.4	5.0	0.0	1.2	4.5	2.2	6.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	4.1	17.4	5.0	0.0	1.2	4.5	2.2	6.5	6.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.24		0.39
Lane Grp Cap(c), veh/h	487	437	370	408	0	486	645	831	704	568	0	0
V/C Ratio(X)	0.14	0.24	0.86	0.35	0.00	0.07	0.24	0.10	0.28	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1004	831	704	863	0	822	1102	831	704	659	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.3	23.7	28.6	18.1	0.0	20.7	12.3	10.9	12.0	18.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	6.1	0.5	0.0	0.1	0.2	0.2	1.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	6.3	1.8	0.0	0.4	1.6	0.8	2.1	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	24.0	34.7	18.6	0.0	20.8	12.5	11.2	13.0	18.5	0.0	0.0
LnGrp LOS	C	C	C	B	A	C	B	B	B	B	A	A
Approach Vol, veh/h		493			174			433			163	
Approach Delay, s/veh		30.5			19.0			12.5			18.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	28.7		45.0	10.0	26.0	10.4	34.6				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	4.4	3.2		8.5	7.0	19.4	6.5	8.0				
Green Ext Time (p_c), s	0.1	0.1		1.1	0.4	1.7	0.4	1.0				

Intersection Summary			
HCM 6th Ctrl Delay		21.2	
HCM 6th LOS		C	

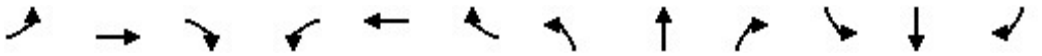


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	548	47	13	69	55	27	216	92	49	202	67
Future Volume (vph)	113	548	47	13	69	55	27	216	92	49	202	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	2992			3052			3154	1425
Flt Permitted	0.65	1.00	1.00	0.25	1.00			0.90			0.82	1.00
Satd. Flow (perm)	1095	1676	1425	424	2992			2771			2596	1425
Peak-hour factor, PHF	0.69	0.92	1.00	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	164	596	47	20	93	63	32	254	97	74	301	105
RTOR Reduction (vph)	0	0	25	0	34	0	0	54	0	0	0	64
Lane Group Flow (vph)	164	596	22	20	122	0	0	329	0	0	375	41
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	503	770	655	194	1375			1094			1025	563
v/s Ratio Prot		c0.36			0.04							
v/s Ratio Perm	0.15		0.02	0.05				0.12			c0.14	0.03
v/c Ratio	0.33	0.77	0.03	0.10	0.09			0.30			0.37	0.07
Uniform Delay, d1	10.6	14.0	9.2	9.5	9.4			12.9			13.3	11.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.7	7.5	0.1	1.1	0.1			0.7			1.0	0.3
Delay (s)	12.4	21.5	9.3	10.6	9.6			13.6			14.3	11.9
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		18.9			9.7			13.6			13.8	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 7th St. & Lawton Ave.

06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	600	6	50	70	2	8	153	122	7	74	2
Future Volume (veh/h)	218	600	6	50	70	2	8	153	122	7	74	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	283	652	7	70	86	2	9	168	134	9	89	2
Peak Hour Factor	0.77	0.92	0.92	0.71	0.81	0.84	0.91	0.91	0.91	0.82	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	552	888	10	276	542	13	96	1474	697	151	1374	31
Arrive On Green	0.17	0.27	0.27	0.07	0.17	0.17	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1603	3241	35	1603	3195	74	85	3017	1427	189	2811	64
Grp Volume(v), veh/h	283	322	337	70	43	45	95	82	134	52	0	48
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1670	1647	1455	1427	1544	0	1520
Q Serve(g_s), s	9.6	13.1	13.1	2.5	1.6	1.7	0.0	2.2	3.8	0.0	0.0	1.2
Cycle Q Clear(g_c), s	9.6	13.1	13.1	2.5	1.6	1.7	2.2	2.2	3.8	1.2	0.0	1.2
Prop In Lane	1.00		0.02	1.00		0.04	0.10		1.00	0.17		0.04
Lane Grp Cap(c), veh/h	552	438	459	276	271	283	860	711	697	813	0	743
V/C Ratio(X)	0.51	0.73	0.73	0.25	0.16	0.16	0.11	0.12	0.19	0.06	0.00	0.06
Avail Cap(c_a), veh/h	1281	1116	1171	948	1340	1399	860	711	697	813	0	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	23.6	23.6	21.9	25.4	25.4	9.9	9.9	10.3	9.7	0.0	9.7
Incr Delay (d2), s/veh	0.7	2.4	2.3	0.5	0.3	0.3	0.3	0.3	0.6	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.9	5.2	0.9	0.6	0.7	0.8	0.7	1.2	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	26.0	25.9	22.4	25.6	25.6	10.2	10.3	10.9	9.8	0.0	9.8
LnGrp LOS	B	C	C	C	C	C	B	B	B	A	A	A
Approach Vol, veh/h		942			158			311			100	
Approach Delay, s/veh		23.6			24.2			10.5			9.8	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.5	16.7		39.5	8.0	24.1		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	11.6	3.7		5.8	4.5	15.1		3.2				
Green Ext Time (p_c), s	0.9	0.5		1.5	0.2	4.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		20.1	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	0	17	0	0	0	46	331	2	3	308	53
Future Vol, veh/h	28	0	17	0	0	0	46	331	2	3	308	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	88	88	88	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	0	34	0	0	0	60	372	2	8	460	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	784	1009	269	739	1047	187	538	0	0	374	0	0
Stage 1	515	515	-	493	493	-	-	-	-	-	-	-
Stage 2	269	494	-	246	554	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	311	239	729	333	227	701	1026	-	-	776	-	-
Stage 1	495	533	-	457	545	-	-	-	-	-	-	-
Stage 2	678	545	-	709	512	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	295	223	729	301	212	701	1026	-	-	776	-	-
Mov Cap-2 Maneuver	295	223	-	301	212	-	-	-	-	-	-	-
Stage 1	466	528	-	430	513	-	-	-	-	-	-	-
Stage 2	638	513	-	669	507	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	0	1.2	0.1
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1026	-	-	295	729	-	-	776	-	-
HCM Lane V/C Ratio	0.058	-	-	0.25	0.047	-	-	0.01	-	-
HCM Control Delay (s)	8.7	-	-	21.2	10.2	0	0	9.7	-	-
HCM Lane LOS	A	-	-	C	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1	0.1	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	687	38	46	105	12	13	0	19	2	0	4
Future Vol, veh/h	4	687	38	46	105	12	13	0	19	2	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	89	89	58	80	80	65	79	79	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	772	43	79	131	15	20	0	24	2	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	815	0	0	1036	1116	408	701	1130	73
Stage 1	-	-	-	-	-	-	812	812	-	297	297	-
Stage 2	-	-	-	-	-	-	224	304	-	404	833	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1434	-	-	808	-	-	186	206	593	325	202	974
Stage 1	-	-	-	-	-	-	339	390	-	687	666	-
Stage 2	-	-	-	-	-	-	758	662	-	594	382	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	808	-	-	169	182	593	284	178	974
Mov Cap-2 Maneuver	-	-	-	-	-	-	169	182	-	284	178	-
Stage 1	-	-	-	-	-	-	335	385	-	679	595	-
Stage 2	-	-	-	-	-	-	674	591	-	563	377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.6	19.4	11.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	169	593	1434	-	-	808	-	-	538
HCM Lane V/C Ratio	0.118	0.041	0.006	-	-	0.098	-	-	0.013
HCM Control Delay (s)	29.1	11.3	7.5	0	-	9.9	0.2	-	11.8
HCM Lane LOS	D	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	0	-	-	0.3	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	373	0	0	83	0	0
Future Vol, veh/h	373	0	0	83	0	0
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	84	83	84	84	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	444	0	0	99	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	444	0	494	222
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1112	-	504	782
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1112	-	504	782
Mov Cap-2 Maneuver	-	-	-	-	504	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	966	-

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

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1112	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	0
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	373	0	0	83
Future Vol, veh/h	0	0	373	0	0	83
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	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	424	0	0	94

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	212	0	0	424	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	793	-	-	1132	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	793	-	-	1132	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1132	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

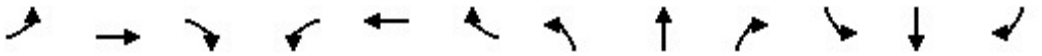
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	5	379	312	13
Future Vol, veh/h	0	6	5	379	312	13
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	6	431	466	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	676	259	518	0	-	0
Stage 1	492	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	417	740	1044	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	414	740	1044	-	-	-
Mov Cap-2 Maneuver	414	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	790	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

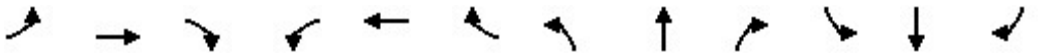
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1044	-	-	740	-	-
HCM Lane V/C Ratio	0.005	-	-	0.013	-	-
HCM Control Delay (s)	8.5	-	0	9.9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	38	130	89	33	14	213	110	195	17	49	72
Future Volume (veh/h)	22	38	130	89	33	14	213	110	195	17	49	72
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	23	40	148	144	45	19	242	125	305	21	61	90
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	240	203	393	235	99	751	963	816	97	241	307
Arrive On Green	0.03	0.14	0.14	0.10	0.21	0.21	0.12	0.57	0.57	0.40	0.40	0.40
Sat Flow, veh/h	1603	1683	1427	1603	1124	474	1603	1683	1427	97	596	761
Grp Volume(v), veh/h	23	40	148	144	0	64	242	125	305	172	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1454	0	0
Q Serve(g_s), s	0.8	1.5	6.9	5.0	0.0	2.3	5.6	2.4	8.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	1.5	6.9	5.0	0.0	2.3	5.6	2.4	8.1	5.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	0.12		0.52
Lane Grp Cap(c), veh/h	316	240	203	393	0	334	751	963	816	645	0	0
V/C Ratio(X)	0.07	0.17	0.73	0.37	0.00	0.19	0.32	0.13	0.37	0.27	0.00	0.00
Avail Cap(c_a), veh/h	962	963	816	922	0	914	1250	963	816	780	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.5	26.3	28.7	20.5	0.0	22.8	8.3	6.9	8.1	14.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	4.9	0.6	0.0	0.3	0.2	0.3	1.3	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	2.6	1.8	0.0	0.9	1.7	0.8	2.4	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	26.7	33.6	21.1	0.0	23.1	8.6	7.2	9.4	14.2	0.0	0.0
LnGrp LOS	C	C	C	C	A	C	A	A	A	B	A	A
Approach Vol, veh/h		211			208			672			172	
Approach Delay, s/veh		31.3			21.7			8.7			14.2	
Approach LOS		C			C			A			B	

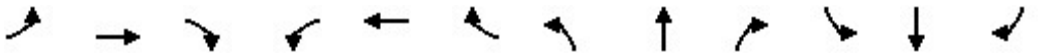
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	19.6		45.0	9.9	15.0	11.8	33.2				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	2.8	4.3		10.1	7.0	8.9	7.6	7.2				
Green Ext Time (p_c), s	0.0	0.3		1.8	0.4	0.7	0.7	1.1				

Intersection Summary			
HCM 6th Ctrl Delay		15.4	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	180	32	134	353	127	35	263	65	38	189	55
Future Volume (vph)	115	180	32	134	353	127	35	263	65	38	189	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3064			3085			3159	1425
Flt Permitted	0.34	1.00	1.00	0.63	1.00			0.90			0.84	1.00
Satd. Flow (perm)	572	1676	1425	1048	3064			2791			2689	1425
Peak-hour factor, PHF	0.80	0.85	0.84	0.76	0.67	0.71	0.95	0.95	0.95	0.75	0.75	0.75
Adj. Flow (vph)	144	212	38	176	527	179	37	277	68	51	252	73
RTOR Reduction (vph)	0	0	19	0	54	0	0	29	0	0	0	48
Lane Group Flow (vph)	144	212	19	176	652	0	0	353	0	0	303	25
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	290	851	723	532	1556			967			932	494
v/s Ratio Prot		0.13			0.21							
v/s Ratio Perm	c0.25		0.01	0.17				c0.13			0.11	0.02
v/c Ratio	0.50	0.25	0.03	0.33	0.42			0.36			0.33	0.05
Uniform Delay, d1	10.0	8.6	7.6	9.0	9.5			15.1			14.9	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	6.0	0.7	0.1	1.7	0.8			1.1			0.9	0.2
Delay (s)	16.0	9.3	7.7	10.7	10.4			16.2			15.8	13.7
Level of Service	B	A	A	B	B			B			B	B
Approach Delay (s)		11.6			10.4			16.2			15.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	238	6	74	389	23	9	115	69	5	151	6
Future Volume (veh/h)	65	238	6	74	389	23	9	115	69	5	151	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	89	326	8	80	564	33	11	140	84	6	194	8
Peak Hour Factor	0.73	0.73	0.73	0.93	0.69	0.70	0.84	0.82	0.82	0.77	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	779	19	370	788	46	132	1482	726	73	1534	62
Arrive On Green	0.06	0.24	0.24	0.07	0.26	0.26	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1603	3190	78	1603	3071	179	142	2914	1427	34	3016	122
Grp Volume(v), veh/h	89	163	171	80	293	304	81	70	84	109	0	99
Grp Sat Flow(s),veh/h/ln	1603	1599	1669	1603	1599	1651	1600	1455	1427	1662	0	1510
Q Serve(g_s), s	2.8	5.9	5.9	2.5	11.5	11.5	0.0	1.7	2.1	0.0	0.0	2.4
Cycle Q Clear(g_c), s	2.8	5.9	5.9	2.5	11.5	11.5	1.7	1.7	2.1	2.3	0.0	2.4
Prop In Lane	1.00		0.05	1.00		0.11	0.14		1.00	0.05		0.08
Lane Grp Cap(c), veh/h	267	390	407	370	410	424	874	740	726	901	0	768
V/C Ratio(X)	0.33	0.42	0.42	0.22	0.71	0.72	0.09	0.10	0.12	0.12	0.00	0.13
Avail Cap(c_a), veh/h	1219	1162	1213	1069	1395	1440	874	740	726	901	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.6	21.9	21.9	17.2	23.3	23.3	8.7	8.7	8.8	8.9	0.0	8.9
Incr Delay (d2), s/veh	0.7	0.7	0.7	0.3	2.3	2.3	0.2	0.3	0.3	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	2.3	0.9	4.3	4.5	0.6	0.5	0.6	0.8	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	22.6	22.6	17.5	25.6	25.6	8.9	9.0	9.1	9.1	0.0	9.2
LnGrp LOS	B	C	C	B	C	C	A	A	A	A	A	A
Approach Vol, veh/h		423			677			235			208	
Approach Delay, s/veh		21.9			24.6			9.0			9.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	22.2		39.5	8.0	21.3		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	4.8	13.5		4.1	4.5	7.9		4.4				
Green Ext Time (p_c), s	0.2	4.1		1.1	0.2	2.1		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		19.4	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	0	39	6	2	4	25	448	30	11	231	26
Future Vol, veh/h	66	0	39	6	2	4	25	448	30	11	231	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	0	62	18	6	12	32	503	33	33	321	36

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	673	1005	179	811	1007	268	357	0	0	536	0	0
Stage 1	405	405	-	584	584	-	-	-	-	-	-	-
Stage 2	268	600	-	227	423	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	367	240	833	299	239	622	1198	-	-	651	-	-
Stage 1	574	597	-	396	496	-	-	-	-	-	-	-
Stage 2	679	488	-	727	586	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	332	222	833	261	221	622	1198	-	-	651	-	-
Mov Cap-2 Maneuver	332	222	-	261	221	-	-	-	-	-	-	-
Stage 1	559	567	-	385	483	-	-	-	-	-	-	-
Stage 2	640	475	-	639	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	17.3	0.5	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1198	-	-	332	833	261	388	651	-	-
HCM Lane V/C Ratio	0.027	-	-	0.343	0.074	0.07	0.047	0.051	-	-
HCM Control Delay (s)	8.1	-	-	21.4	9.7	19.8	14.7	10.8	-	-
HCM Lane LOS	A	-	-	C	A	C	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0.2	0.2	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	287	23	16	421	6	54	0	35	5	0	11
Future Vol, veh/h	2	287	23	16	421	6	54	0	35	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	58	58	80	70	70	79	63	63	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	495	40	20	601	9	68	0	56	6	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	610	0	0	535	0	0	862	1171	268	900	1187	305
Stage 1	-	-	-	-	-	-	521	521	-	646	646	-
Stage 2	-	-	-	-	-	-	341	650	-	254	541	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	965	-	-	1029	-	-	249	191	730	233	187	691
Stage 1	-	-	-	-	-	-	507	530	-	427	465	-
Stage 2	-	-	-	-	-	-	647	463	-	728	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	965	-	-	1029	-	-	238	185	730	210	181	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	185	-	210	181	-
Stage 1	-	-	-	-	-	-	505	528	-	425	452	-
Stage 2	-	-	-	-	-	-	616	450	-	670	517	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	19	14.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	238	730	965	-	-	1029	-	-	403
HCM Lane V/C Ratio	0.287	0.076	0.003	-	-	0.019	-	-	0.048
HCM Control Delay (s)	26.1	10.3	8.7	0	-	8.6	0.1	-	14.4
HCM Lane LOS	D	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	203	0	0	162	0	0
Future Vol, veh/h	203	0	0	162	0	0
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	228	0	0	238	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	228	0	347	114
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1337	-	624	917
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1337	-	624	917
Mov Cap-2 Maneuver	-	-	-	-	624	-
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	893	-

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

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1337	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	0
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	203	0	0	162
Future Vol, veh/h	0	0	203	0	0	162
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	248	0	0	198

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	124	0	0	248	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	904	-	-	1315	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	904	-	-	1315	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1315	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	2	503	269	7
Future Vol, veh/h	0	13	2	503	269	7
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	73	82	89	74	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	2	565	364	9

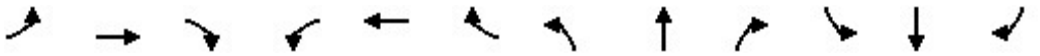
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	599	187	373	0	-	0
Stage 1	369	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	460	823	1182	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	459	823	1182	-	-	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	748	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1182	-	-	823	-	-
HCM Lane V/C Ratio	0.002	-	-	0.022	-	-
HCM Control Delay (s)	8.1	-	0	9.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

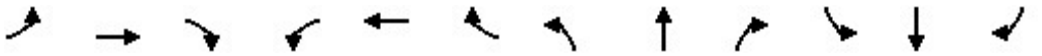
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	76	245	129	22	2	151	89	186	34	52	56
Future Volume (veh/h)	47	76	245	129	22	2	151	89	186	34	52	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	80	129	383	157	37	3	184	97	232	47	72	78
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	535	507	430	421	514	42	574	774	656	130	189	176
Arrive On Green	0.05	0.30	0.30	0.09	0.33	0.33	0.10	0.46	0.46	0.32	0.32	0.32
Sat Flow, veh/h	1603	1683	1427	1603	1536	125	1603	1683	1427	248	593	551
Grp Volume(v), veh/h	80	129	383	157	0	40	184	97	232	197	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1661	1603	1683	1427	1391	0	0
Q Serve(g_s), s	3.0	5.0	22.3	5.6	0.0	1.4	6.3	2.9	9.1	2.7	0.0	0.0
Cycle Q Clear(g_c), s	3.0	5.0	22.3	5.6	0.0	1.4	6.3	2.9	9.1	9.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.24		0.40
Lane Grp Cap(c), veh/h	535	507	430	421	0	556	574	774	656	495	0	0
V/C Ratio(X)	0.15	0.25	0.89	0.37	0.00	0.07	0.32	0.13	0.35	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1006	774	656	830	0	764	966	774	656	607	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.2	23.0	29.0	17.0	0.0	19.7	15.3	13.5	15.2	23.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	9.9	0.5	0.0	0.1	0.3	0.3	1.5	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	8.5	2.0	0.0	0.5	2.2	1.1	3.1	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	23.3	38.9	17.5	0.0	19.8	15.6	13.8	16.7	23.6	0.0	0.0
LnGrp LOS	B	C	D	B	A	B	B	B	B	C	A	A
Approach Vol, veh/h		592			197			513			197	
Approach Delay, s/veh		32.8			18.0			15.7			23.6	
Approach LOS		C			B			B			C	

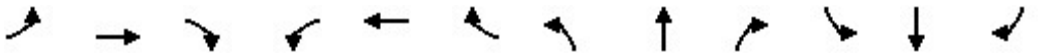
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	34.1		45.0	10.8	31.2	12.3	32.7				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	5.0	3.4		11.1	7.6	24.3	8.3	11.0				
Green Ext Time (p_c), s	0.2	0.2		1.3	0.4	1.9	0.5	1.2				

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	658	56	16	83	66	31	254	111	59	240	80
Future Volume (vph)	132	658	56	16	83	66	31	254	111	59	240	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	2992			3049			3154	1425
Flt Permitted	0.63	1.00	1.00	0.15	1.00			0.90			0.79	1.00
Satd. Flow (perm)	1062	1676	1425	253	2992			2746			2510	1425
Peak-hour factor, PHF	0.69	0.92	0.63	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	191	715	89	25	112	76	36	299	117	89	358	125
RTOR Reduction (vph)	0	0	48	0	41	0	0	56	0	0	0	76
Lane Group Flow (vph)	191	715	41	25	147	0	0	396	0	0	447	49
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	488	770	655	116	1375			1085			991	563
v/s Ratio Prot		c0.43			0.05							
v/s Ratio Perm	0.18		0.03	0.10				0.14			c0.18	0.03
v/c Ratio	0.39	0.93	0.06	0.22	0.11			0.36			0.45	0.09
Uniform Delay, d1	11.0	15.8	9.3	10.0	9.5			13.3			13.8	11.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	2.4	19.1	0.2	4.2	0.2			0.9			1.5	0.3
Delay (s)	13.4	34.9	9.5	14.3	9.7			14.2			15.3	12.1
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		28.5			10.2			14.2			14.6	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	723	8	60	83	3	10	182	149	9	89	3
Future Volume (veh/h)	262	723	8	60	83	3	10	182	149	9	89	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	340	786	9	85	102	4	11	200	164	11	107	4
Peak Hour Factor	0.77	0.92	0.92	0.71	0.81	0.84	0.91	0.91	0.91	0.82	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	1030	12	267	599	23	91	1372	650	140	1252	47
Arrive On Green	0.20	0.32	0.32	0.07	0.19	0.19	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1603	3239	37	1603	3138	122	88	3010	1427	187	2749	104
Grp Volume(v), veh/h	340	388	407	85	52	54	113	98	164	64	0	58
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1661	1643	1455	1427	1526	0	1513
Q Serve(g_s), s	12.1	16.8	16.8	3.2	2.1	2.1	0.0	3.0	5.4	0.0	0.0	1.7
Cycle Q Clear(g_c), s	12.1	16.8	16.8	3.2	2.1	2.1	3.0	3.0	5.4	1.6	0.0	1.7
Prop In Lane	1.00		0.02	1.00		0.07	0.10		1.00	0.17		0.07
Lane Grp Cap(c), veh/h	600	509	533	267	305	317	800	663	650	750	0	689
V/C Ratio(X)	0.57	0.76	0.76	0.32	0.17	0.17	0.14	0.15	0.25	0.08	0.00	0.08
Avail Cap(c_a), veh/h	1222	1041	1091	885	1249	1298	800	663	650	750	0	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	23.6	23.6	22.5	26.0	26.0	12.2	12.2	12.9	11.8	0.0	11.8
Incr Delay (d2), s/veh	0.8	2.4	2.3	0.7	0.3	0.3	0.4	0.5	0.9	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.3	6.6	1.2	0.8	0.8	1.1	1.0	1.8	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	26.0	25.9	23.2	26.2	26.3	12.6	12.7	13.8	12.1	0.0	12.1
LnGrp LOS	B	C	C	C	C	C	B	B	B	B	A	B
Approach Vol, veh/h		1135			191			375			122	
Approach Delay, s/veh		23.5			24.9			13.1			12.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.2	19.2		39.5	8.4	28.9		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	14.1	4.1		7.4	5.2	18.8		3.7				
Green Ext Time (p_c), s	1.1	0.6		1.8	0.2	5.6		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		20.7	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	0	17	0	0	0	46	398	3	4	369	53
Future Vol, veh/h	28	0	17	0	0	0	46	398	3	4	369	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	88	88	88	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	0	34	0	0	0	60	447	3	11	551	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	911	1182	315	867	1220	225	629	0	0	450	0	0
Stage 1	612	612	-	569	569	-	-	-	-	-	-	-
Stage 2	299	570	-	298	651	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	257	188	681	274	179	663	949	-	-	715	-	-
Stage 1	434	482	-	405	504	-	-	-	-	-	-	-
Stage 2	650	504	-	662	463	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	242	174	681	245	165	663	949	-	-	715	-	-
Mov Cap-2 Maneuver	242	174	-	245	165	-	-	-	-	-	-	-
Stage 1	407	475	-	379	472	-	-	-	-	-	-	-
Stage 2	609	472	-	619	456	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.3	0	1.1	0.2
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	949	-	-	242	681	-	-	715	-	-
HCM Lane V/C Ratio	0.063	-	-	0.304	0.05	-	-	0.015	-	-
HCM Control Delay (s)	9	-	-	26.3	10.6	0	0	10.1	-	-
HCM Lane LOS	A	-	-	D	B	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.2	-	-	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	821	56	56	125	12	16	0	23	2	0	4
Future Vol, veh/h	4	821	56	56	125	12	16	0	23	2	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	89	89	58	80	80	65	79	79	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	922	63	97	156	15	25	0	29	2	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	171	0	0	985	0	0	1244	1337	493	837	1361	86
Stage 1	-	-	-	-	-	-	972	972	-	358	358	-
Stage 2	-	-	-	-	-	-	272	365	-	479	1003	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1404	-	-	697	-	-	131	152	522	259	147	956
Stage 1	-	-	-	-	-	-	271	329	-	633	626	-
Stage 2	-	-	-	-	-	-	711	622	-	537	318	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1404	-	-	697	-	-	114	127	522	213	123	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	127	-	213	123	-
Stage 1	-	-	-	-	-	-	267	324	-	624	530	-
Stage 2	-	-	-	-	-	-	599	526	-	500	314	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	4.2	27.3	13.3
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	114	522	1404	-	-	697	-	-	442
HCM Lane V/C Ratio	0.216	0.056	0.006	-	-	0.139	-	-	0.015
HCM Control Delay (s)	45.1	12.3	7.6	0.1	-	11	0.4	-	13.3
HCM Lane LOS	E	B	A	A	-	B	A	-	B
HCM 95th %tile Q(veh)	0.8	0.2	0	-	-	0.5	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	447	0	0	101	0	0
Future Vol, veh/h	447	0	0	101	0	0
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	84	83	84	84	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	532	0	0	120	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	532	0	592	266
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1032	-	437	732
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1032	-	437	732
Mov Cap-2 Maneuver	-	-	-	-	437	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	955	-

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

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1032	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	0
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	447	0	0	101
Future Vol, veh/h	0	0	447	0	0	101
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	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	508	0	0	115

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	254	0	0	508	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	745	-	-	1053	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	745	-	-	1053	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1053	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

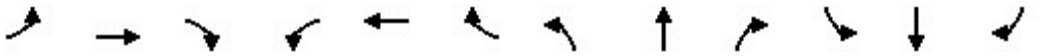
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	5	447	373	13
Future Vol, veh/h	0	6	5	447	373	13
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	6	508	557	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	798	305	609	0	-	0
Stage 1	583	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	356	691	966	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	354	691	966	-	-	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.1	0
HCM LOS	B		

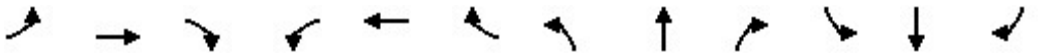
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	966	-	-	691	-	-
HCM Lane V/C Ratio	0.006	-	-	0.014	-	-
HCM Control Delay (s)	8.7	-	0	10.3	-	-
HCM Lane LOS	A	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	46	156	102	40	17	255	122	233	21	58	87
Future Volume (veh/h)	27	46	156	102	40	17	255	122	233	21	58	87
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	29	49	177	165	55	23	290	139	364	26	72	109
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	267	226	414	260	109	704	929	788	91	212	274
Arrive On Green	0.03	0.16	0.16	0.11	0.23	0.23	0.14	0.55	0.55	0.36	0.36	0.36
Sat Flow, veh/h	1603	1683	1427	1603	1127	471	1603	1683	1427	96	587	759
Grp Volume(v), veh/h	29	49	177	165	0	78	290	139	364	207	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1442	0	0
Q Serve(g_s), s	1.1	1.8	8.6	5.9	0.0	2.9	7.5	2.9	11.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	1.8	8.6	5.9	0.0	2.9	7.5	2.9	11.1	7.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	0.13		0.53
Lane Grp Cap(c), veh/h	337	267	226	414	0	369	704	929	788	577	0	0
V/C Ratio(X)	0.09	0.18	0.78	0.40	0.00	0.21	0.41	0.15	0.46	0.36	0.00	0.00
Avail Cap(c_a), veh/h	951	929	788	902	0	882	1139	929	788	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.3	26.4	29.3	20.1	0.0	22.5	9.7	7.9	9.8	17.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	5.9	0.6	0.0	0.3	0.4	0.3	1.9	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	3.2	2.1	0.0	1.1	2.4	1.0	3.4	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	26.8	35.2	20.7	0.0	22.8	10.1	8.3	11.7	17.5	0.0	0.0
LnGrp LOS	C	C	D	C	A	C	B	A	B	B	A	A
Approach Vol, veh/h		255			243			793			207	
Approach Delay, s/veh		32.3			21.4			10.5			17.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	21.7		45.0	11.0	16.5	13.8	31.2				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	3.1	4.9		13.1	7.9	10.6	9.5	9.2				
Green Ext Time (p_c), s	0.0	0.4		2.1	0.4	0.9	0.8	1.3				

Intersection Summary												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									

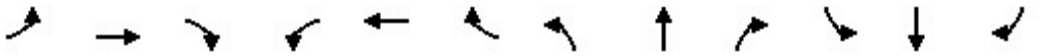


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	216	38	161	424	152	41	313	78	45	220	64
Future Volume (vph)	137	216	38	161	424	152	41	313	78	45	220	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3065			3084			3158	1425
Flt Permitted	0.27	1.00	1.00	0.59	1.00			0.89			0.82	1.00
Satd. Flow (perm)	461	1676	1425	993	3065			2764			2618	1425
Peak-hour factor, PHF	0.80	0.85	0.84	0.76	0.67	0.71	0.95	0.95	0.95	0.75	0.75	0.75
Adj. Flow (vph)	171	254	45	212	633	214	43	329	82	60	293	85
RTOR Reduction (vph)	0	0	22	0	54	0	0	30	0	0	0	56
Lane Group Flow (vph)	171	254	23	212	793	0	0	424	0	0	353	29
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	234	851	723	504	1557			958			907	494
v/s Ratio Prot		0.15			0.26							
v/s Ratio Perm	c0.37		0.02	0.21				c0.15			0.13	0.02
v/c Ratio	0.73	0.30	0.03	0.42	0.51			0.44			0.39	0.06
Uniform Delay, d1	11.9	8.8	7.6	9.5	10.1			15.6			15.3	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	18.2	0.9	0.1	2.6	1.2			1.5			1.3	0.2
Delay (s)	30.1	9.7	7.7	12.1	11.3			17.1			16.6	13.7
Level of Service	C	A	A	B	B			B			B	B
Approach Delay (s)		16.9			11.5			17.1			16.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 7th St. & Lawton Ave.

06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	293	8	88	463	28	11	137	80	6	182	8
Future Volume (veh/h)	78	293	8	88	463	28	11	137	80	6	182	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	107	401	11	95	671	40	13	167	98	8	233	10
Peak Hour Factor	0.73	0.73	0.73	0.93	0.69	0.70	0.84	0.82	0.82	0.77	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	929	25	377	903	54	122	1381	677	71	1423	60
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1603	3180	87	1603	3067	183	140	2909	1427	40	2998	126
Grp Volume(v), veh/h	107	201	211	95	350	361	96	84	98	132	0	119
Grp Sat Flow(s),veh/h/ln	1603	1599	1668	1603	1599	1650	1593	1455	1427	1656	0	1509
Q Serve(g_s), s	3.4	7.5	7.5	3.0	14.6	14.6	0.0	2.4	2.9	0.0	0.0	3.3
Cycle Q Clear(g_c), s	3.4	7.5	7.5	3.0	14.6	14.6	2.3	2.4	2.9	3.3	0.0	3.3
Prop In Lane	1.00		0.05	1.00		0.11	0.14		1.00	0.06		0.08
Lane Grp Cap(c), veh/h	271	467	487	377	471	486	812	691	677	838	0	716
V/C Ratio(X)	0.39	0.43	0.43	0.25	0.74	0.74	0.12	0.12	0.14	0.16	0.00	0.17
Avail Cap(c_a), veh/h	1140	1084	1131	1025	1301	1343	812	691	677	838	0	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	21.1	21.1	16.4	23.5	23.5	10.8	10.8	10.9	11.0	0.0	11.1
Incr Delay (d2), s/veh	0.9	0.6	0.6	0.3	2.3	2.3	0.3	0.4	0.4	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.8	2.9	1.1	5.5	5.7	0.9	0.8	0.9	1.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	21.8	21.8	16.7	25.8	25.8	11.1	11.2	11.4	11.4	0.0	11.6
LnGrp LOS	B	C	C	B	C	C	B	B	B	B	A	B
Approach Vol, veh/h		519			806			278			251	
Approach Delay, s/veh		21.1			24.7			11.2			11.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	26.2		39.5	8.2	26.0		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	5.4	16.6		4.9	5.0	9.5		5.3				
Green Ext Time (p_c), s	0.3	5.1		1.4	0.2	2.6		1.5				

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

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	0	39	8	3	5	25	538	36	14	276	26
Future Vol, veh/h	66	0	39	8	3	5	25	538	36	14	276	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	0	62	24	9	15	32	604	40	42	383	36

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	795	1193	210	964	1191	322	419	0	0	644	0	0
Stage 1	485	485	-	688	688	-	-	-	-	-	-	-
Stage 2	310	708	-	276	503	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	306	186	796	237	186	575	1137	-	-	579	-	-
Stage 1	515	550	-	336	445	-	-	-	-	-	-	-
Stage 2	640	436	-	682	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	264	168	796	202	168	575	1137	-	-	579	-	-
Mov Cap-2 Maneuver	264	168	-	202	168	-	-	-	-	-	-	-
Stage 1	501	510	-	327	433	-	-	-	-	-	-	-
Stage 2	593	424	-	583	501	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22	21.6	0.4	1.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1137	-	-	264	796	202	301	579	-	-
HCM Lane V/C Ratio	0.029	-	-	0.431	0.078	0.12	0.081	0.073	-	-
HCM Control Delay (s)	8.3	-	-	28.6	9.9	25.2	18	11.7	-	-
HCM Lane LOS	A	-	-	D	A	D	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2	0.3	0.4	0.3	0.2	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	343	34	20	503	6	65	0	42	5	0	11
Future Vol, veh/h	2	343	34	20	503	6	65	0	42	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	58	58	80	70	70	79	63	63	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	591	59	25	719	9	82	0	67	6	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	728	0	0	650	0	0	1037	1405	325	1076	1430	364
Stage 1	-	-	-	-	-	-	627	627	-	774	774	-
Stage 2	-	-	-	-	-	-	410	778	-	302	656	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	871	-	-	932	-	-	185	138	671	174	133	633
Stage 1	-	-	-	-	-	-	438	474	-	357	406	-
Stage 2	-	-	-	-	-	-	589	405	-	682	460	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	871	-	-	932	-	-	174	131	671	151	126	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	174	131	-	151	126	-
Stage 1	-	-	-	-	-	-	436	472	-	355	388	-
Stage 2	-	-	-	-	-	-	551	387	-	611	458	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	28.7	17
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	174	671	871	-	-	932	-	-	317
HCM Lane V/C Ratio	0.473	0.099	0.003	-	-	0.027	-	-	0.057
HCM Control Delay (s)	43	11	9.1	0	-	9	0.2	-	17
HCM Lane LOS	E	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.2	0.3	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	243	0	0	196	0	0
Future Vol, veh/h	243	0	0	196	0	0
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	273	0	0	288	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	273	0	417	137
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	144	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1287	-	564	886
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1287	-	564	886
Mov Cap-2 Maneuver	-	-	-	-	564	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	868	-

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

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1287	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	0
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	243	0	0	196
Future Vol, veh/h	0	0	243	0	0	196
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	296	0	0	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	148	0	0	296	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	872	-	-	1262	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	872	-	-	1262	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1262	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	2	599	316	7
Future Vol, veh/h	0	13	2	599	316	7
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	73	88	89	74	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	2	673	427	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	704	218	435	0	-	0
Stage 1	431	-	-	-	-	-
Stage 2	273	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	402	786	1121	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	401	786	1121	-	-	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

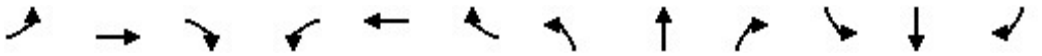
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1121	-	-	786	-	-
HCM Lane V/C Ratio	0.002	-	-	0.023	-	-
HCM Control Delay (s)	8.2	-	0	9.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

APPENDIX D

Base + VA Hospital + OSU CHS MH Hospital Traffic Capacity Analysis Reports

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

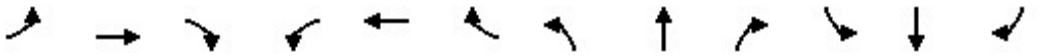
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	63	207	144	18	1	127	86	157	28	46	46
Future Volume (veh/h)	39	63	207	144	18	1	127	86	157	28	46	46
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	66	107	323	176	31	2	155	93	196	39	64	64
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	484	439	372	433	486	31	623	808	685	141	218	190
Arrive On Green	0.05	0.26	0.26	0.10	0.31	0.31	0.09	0.48	0.48	0.35	0.35	0.35
Sat Flow, veh/h	1603	1683	1427	1603	1564	101	1603	1683	1427	248	620	540
Grp Volume(v), veh/h	66	107	323	176	0	33	155	93	196	167	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1665	1603	1683	1427	1409	0	0
Q Serve(g_s), s	2.5	4.2	18.0	6.3	0.0	1.2	4.8	2.5	6.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	4.2	18.0	6.3	0.0	1.2	4.8	2.5	6.9	6.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.23		0.38
Lane Grp Cap(c), veh/h	484	439	372	433	0	517	623	808	685	549	0	0
V/C Ratio(X)	0.14	0.24	0.87	0.41	0.00	0.06	0.25	0.12	0.29	0.30	0.00	0.00
Avail Cap(c_a), veh/h	986	808	685	845	0	800	1062	808	685	642	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.8	24.3	29.4	17.8	0.0	20.2	13.3	11.9	13.0	19.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	6.3	0.6	0.0	0.1	0.2	0.3	1.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.7	6.6	2.3	0.0	0.4	1.7	1.0	0.2	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	24.6	35.7	18.4	0.0	20.2	13.5	12.2	14.1	19.9	0.0	0.0
LnGrp LOS	C	C	D	B	A	C	B	B	B	B	A	A
Approach Vol, veh/h		496			209			444			167	
Approach Delay, s/veh		31.4			18.7			13.5			19.9	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	30.9		45.0	11.6	26.7	10.7	34.3				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	4.5	3.2		8.9	8.3	20.0	6.8	8.4				
Green Ext Time (p_c), s	0.1	0.1		1.2	0.5	1.7	0.4	1.0				

Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									

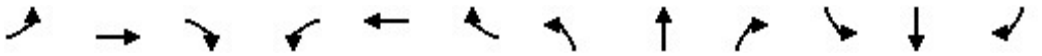


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	549	46	13	69	57	29	235	92	50	211	73
Future Volume (vph)	120	549	46	13	69	57	29	235	92	50	211	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	2987			3059			3155	1425
Flt Permitted	0.65	1.00	1.00	0.25	1.00			0.90			0.81	1.00
Satd. Flow (perm)	1092	1676	1425	423	2987			2769			2579	1425
Peak-hour factor, PHF	0.69	0.92	0.63	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	174	597	73	20	93	66	34	276	97	76	315	114
RTOR Reduction (vph)	0	0	39	0	36	0	0	48	0	0	0	69
Lane Group Flow (vph)	174	597	34	20	123	0	0	359	0	0	391	45
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	501	770	655	194	1373			1094			1019	563
v/s Ratio Prot		c0.36			0.04							
v/s Ratio Perm	0.16		0.02	0.05				0.13			c0.15	0.03
v/c Ratio	0.35	0.78	0.05	0.10	0.09			0.33			0.38	0.08
Uniform Delay, d1	10.8	14.1	9.3	9.5	9.4			13.0			13.4	11.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.9	7.5	0.1	1.1	0.1			0.8			1.1	0.3
Delay (s)	12.7	21.6	9.4	10.6	9.6			13.8			14.5	12.0
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		18.7			9.7			13.8			13.9	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 7th St. & Lawton Ave.

06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	607	6	51	74	5	8	154	122	7	74	2
Future Volume (veh/h)	222	607	6	51	74	5	8	154	122	7	74	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	288	660	7	72	91	6	9	169	134	9	89	2
Peak Hour Factor	0.77	0.92	0.92	0.71	0.81	0.84	0.91	0.91	0.91	0.82	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	897	10	275	517	34	96	1470	695	151	1369	31
Arrive On Green	0.18	0.28	0.28	0.07	0.17	0.17	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1603	3242	34	1603	3048	199	84	3018	1427	189	2811	64
Grp Volume(v), veh/h	288	326	341	72	47	50	95	83	134	52	0	48
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1647	1647	1455	1427	1544	0	1520
Q Serve(g_s), s	9.9	13.3	13.3	2.6	1.8	1.9	0.0	2.2	3.8	0.0	0.0	1.2
Cycle Q Clear(g_c), s	9.9	13.3	13.3	2.6	1.8	1.9	2.2	2.2	3.8	1.2	0.0	1.2
Prop In Lane	1.00		0.02	1.00		0.12	0.09		1.00	0.17		0.04
Lane Grp Cap(c), veh/h	551	442	464	275	271	279	857	709	695	810	0	740
V/C Ratio(X)	0.52	0.74	0.74	0.26	0.17	0.18	0.11	0.12	0.19	0.06	0.00	0.06
Avail Cap(c_a), veh/h	1272	1112	1167	944	1335	1375	857	709	695	810	0	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	23.6	23.6	22.0	25.5	25.6	10.0	10.0	10.4	9.8	0.0	9.8
Incr Delay (d2), s/veh	0.8	2.4	2.3	0.5	0.3	0.3	0.3	0.3	0.6	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.0	5.2	1.0	0.7	0.7	0.8	0.7	1.2	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	26.0	25.9	22.5	25.8	25.9	10.3	10.4	11.1	9.9	0.0	9.9
LnGrp LOS	B	C	C	C	C	C	B	B	B	A	A	A
Approach Vol, veh/h		955			169			312			100	
Approach Delay, s/veh		23.6			24.4			10.6			9.9	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	16.7		39.5	8.0	24.4		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	11.9	3.9		5.8	4.6	15.3		3.2				
Green Ext Time (p_c), s	0.9	0.6		1.5	0.2	4.6		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	0	33	0	0	0	74	331	2	3	308	86
Future Vol, veh/h	39	0	33	0	0	0	74	331	2	3	308	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	88	88	88	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	0	66	0	0	0	96	372	2	8	460	126

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	880	1105	293	811	1167	187	586	0	0	374	0	0
Stage 1	539	539	-	565	565	-	-	-	-	-	-	-
Stage 2	341	566	-	246	602	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	269	209	703	299	192	701	985	-	-	776	-	-
Stage 1	479	520	-	408	506	-	-	-	-	-	-	-
Stage 2	613	506	-	709	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	247	187	703	249	172	701	985	-	-	776	-	-
Mov Cap-2 Maneuver	247	187	-	249	172	-	-	-	-	-	-	-
Stage 1	433	515	-	368	457	-	-	-	-	-	-	-
Stage 2	553	457	-	636	482	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.2	0	1.8	0.1
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	985	-	-	247	703	-	-	776	-	-
HCM Lane V/C Ratio	0.098	-	-	0.416	0.094	-	-	0.01	-	-
HCM Control Delay (s)	9.1	-	-	29.6	10.7	0	0	9.7	-	-
HCM Lane LOS	A	-	-	D	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.9	0.3	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	694	38	46	113	12	13	0	19	2	0	4
Future Vol, veh/h	4	694	38	46	113	12	13	0	19	2	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	89	89	58	80	80	65	79	79	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	780	43	79	141	15	20	0	24	2	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	823	0	0	1049	1134	412	715	1148	78
Stage 1	-	-	-	-	-	-	820	820	-	307	307	-
Stage 2	-	-	-	-	-	-	229	314	-	408	841	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1422	-	-	803	-	-	182	201	589	318	197	967
Stage 1	-	-	-	-	-	-	335	387	-	678	660	-
Stage 2	-	-	-	-	-	-	753	655	-	591	379	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1422	-	-	803	-	-	165	177	589	277	174	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	177	-	277	174	-
Stage 1	-	-	-	-	-	-	331	382	-	670	589	-
Stage 2	-	-	-	-	-	-	669	584	-	560	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.5	19.8	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	165	589	1422	-	-	803	-	-	528
HCM Lane V/C Ratio	0.121	0.041	0.006	-	-	0.099	-	-	0.013
HCM Control Delay (s)	29.8	11.4	7.5	0	-	10	0.3	-	11.9
HCM Lane LOS	D	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	0	-	-	0.3	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	374	7	1	83	0	3
Future Vol, veh/h	374	7	1	83	0	3
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	84	83	84	84	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	445	8	1	99	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	453	0	501	227
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	52	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1104	-	499	776
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1104	-	499	776
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	963	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1104	-	776
HCM Lane V/C Ratio	-	-	0.001	-	0.004
HCM Control Delay (s)	-	-	8.3	0	9.7
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	381	0	0	83
Future Vol, veh/h	0	0	381	0	0	83
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	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	433	0	0	94

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	217	0	0	433	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	787	-	-	1123	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	787	-	-	1123	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1123	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

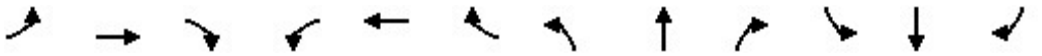
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	5	407	328	13
Future Vol, veh/h	0	6	5	407	328	13
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	6	463	490	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	713	271	542	0	-	0
Stage 1	516	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	397	727	1023	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	395	727	1023	-	-	-
Mov Cap-2 Maneuver	395	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.1	0
HCM LOS	B		

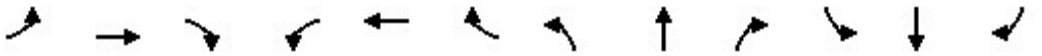
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1023	-	-	727	-	-
HCM Lane V/C Ratio	0.006	-	-	0.013	-	-
HCM Control Delay (s)	8.5	-	0	10	-	-
HCM Lane LOS	A	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	38	131	104	33	14	216	129	199	17	50	72
Future Volume (veh/h)	22	38	131	104	33	14	216	129	199	17	50	72
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	23	40	149	168	45	19	245	147	311	21	62	90
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	236	200	412	249	105	737	948	803	94	236	297
Arrive On Green	0.03	0.14	0.14	0.11	0.22	0.22	0.12	0.56	0.56	0.39	0.39	0.39
Sat Flow, veh/h	1603	1683	1427	1603	1124	474	1603	1683	1427	95	601	755
Grp Volume(v), veh/h	23	40	149	168	0	64	245	147	311	173	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1452	0	0
Q Serve(g_s), s	0.9	1.5	7.1	6.0	0.0	2.3	5.9	3.0	8.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	1.5	7.1	6.0	0.0	2.3	5.9	3.0	8.7	5.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	0.12		0.52
Lane Grp Cap(c), veh/h	311	236	200	412	0	354	737	948	803	628	0	0
V/C Ratio(X)	0.07	0.17	0.75	0.41	0.00	0.18	0.33	0.16	0.39	0.28	0.00	0.00
Avail Cap(c_a), veh/h	947	948	803	906	0	900	1221	948	803	765	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.1	26.9	29.3	20.5	0.0	22.4	8.8	7.4	8.7	14.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	5.4	0.6	0.0	0.2	0.3	0.3	1.4	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	2.6	2.2	0.0	0.9	1.8	1.0	2.6	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	27.2	34.8	21.2	0.0	22.7	9.1	7.8	10.1	15.0	0.0	0.0
LnGrp LOS	C	C	C	C	A	C	A	A	B	B	A	A
Approach Vol, veh/h		212			232			703			173	
Approach Delay, s/veh		32.3			21.6			9.3			15.0	
Approach LOS		C			C			A			B	

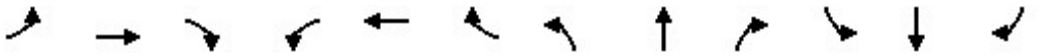
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	20.7		45.0	11.1	15.0	12.1	32.9				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	2.9	4.3		10.7	8.0	9.1	7.9	7.5				
Green Ext Time (p_c), s	0.0	0.3		2.0	0.4	0.7	0.7	1.1				

Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	180	32	134	353	128	36	273	65	41	209	67
Future Volume (vph)	118	180	32	134	353	128	36	273	65	41	209	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3058			3088			3159	1425
Flt Permitted	0.41	1.00	1.00	0.62	1.00			0.90			0.83	1.00
Satd. Flow (perm)	681	1676	1425	1041	3058			2781			2656	1425
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	144	220	39	163	430	156	44	333	79	50	255	82
RTOR Reduction (vph)	0	0	19	0	60	0	0	29	0	0	0	54
Lane Group Flow (vph)	144	220	20	163	526	0	0	427	0	0	305	28
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	345	851	723	528	1553			964			921	494
v/s Ratio Prot		0.13			0.17							
v/s Ratio Perm	c0.21		0.01	0.16				c0.15			0.11	0.02
v/c Ratio	0.42	0.26	0.03	0.31	0.34			0.44			0.33	0.06
Uniform Delay, d1	9.5	8.6	7.6	8.9	9.1			15.6			14.9	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.7	0.7	0.1	1.5	0.6			1.5			1.0	0.2
Delay (s)	13.2	9.4	7.7	10.4	9.7			17.1			15.9	13.7
Level of Service	B	A	A	B	A			B			B	B
Approach Delay (s)		10.6			9.8			17.1			15.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	241	6	76	394	29	9	116	69	5	151	6
Future Volume (veh/h)	67	241	6	76	394	29	9	116	69	5	151	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	82	294	7	93	480	35	11	141	84	6	184	7
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	672	16	360	692	50	137	1547	756	78	1602	60
Arrive On Green	0.06	0.21	0.21	0.08	0.23	0.23	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1603	3193	76	1603	3023	220	141	2918	1427	38	3021	113
Grp Volume(v), veh/h	82	147	154	93	253	262	81	71	84	103	0	94
Grp Sat Flow(s),veh/h/ln	1603	1599	1670	1603	1599	1644	1603	1455	1427	1660	0	1511
Q Serve(g_s), s	2.6	5.3	5.3	2.9	9.6	9.6	0.0	1.6	1.9	0.0	0.0	2.0
Cycle Q Clear(g_c), s	2.6	5.3	5.3	2.9	9.6	9.6	1.6	1.6	1.9	2.0	0.0	2.0
Prop In Lane	1.00		0.05	1.00		0.13	0.14		1.00	0.06		0.07
Lane Grp Cap(c), veh/h	270	336	351	360	366	376	912	772	756	938	0	802
V/C Ratio(X)	0.30	0.44	0.44	0.26	0.69	0.70	0.09	0.09	0.11	0.11	0.00	0.12
Avail Cap(c_a), veh/h	1268	1211	1265	1086	1454	1494	912	772	756	938	0	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	22.7	22.7	17.8	23.3	23.3	7.6	7.7	7.7	7.8	0.0	7.8
Incr Delay (d2), s/veh	0.6	0.9	0.9	0.4	2.3	2.3	0.2	0.2	0.3	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.0	2.1	1.0	3.6	3.7	0.5	0.5	0.6	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	23.5	23.5	18.2	25.7	25.7	7.8	7.9	8.0	8.0	0.0	8.1
LnGrp LOS	B	C	C	B	C	C	A	A	A	A	A	A
Approach Vol, veh/h		383			608			236			197	
Approach Delay, s/veh		22.7			24.5			7.9			8.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	19.6		39.5	8.1	18.4		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	4.6	11.6		3.9	4.9	7.3		4.0				
Green Ext Time (p_c), s	0.2	3.5		1.1	0.2	1.9		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		19.0	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	0	74	6	2	4	39	448	30	11	231	43
Future Vol, veh/h	92	0	74	6	2	4	39	448	30	11	231	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	159	0	117	18	6	12	51	503	33	33	321	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	723	1055	191	849	1069	268	381	0	0	536	0	0
Stage 1	417	417	-	622	622	-	-	-	-	-	-	-
Stage 2	306	638	-	227	447	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	341	224	818	282	220	622	1174	-	-	651	-	-
Stage 1	565	590	-	373	477	-	-	-	-	-	-	-
Stage 2	644	469	-	727	572	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	304	203	818	224	200	622	1174	-	-	651	-	-
Mov Cap-2 Maneuver	304	203	-	224	200	-	-	-	-	-	-	-
Stage 1	541	560	-	357	456	-	-	-	-	-	-	-
Stage 2	596	449	-	591	543	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21	19	0.7	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1174	-	-	304	818	224	365	651	-	-
HCM Lane V/C Ratio	0.043	-	-	0.522	0.144	0.081	0.05	0.051	-	-
HCM Control Delay (s)	8.2	-	-	29.1	10.1	22.5	15.4	10.8	-	-
HCM Lane LOS	A	-	-	D	B	C	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.8	0.5	0.3	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	290	23	16	434	6	54	0	35	5	0	11
Future Vol, veh/h	2	290	23	16	434	6	54	0	35	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	58	58	80	70	70	79	63	63	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	500	40	20	620	9	68	0	56	6	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	629	0	0	540	0	0	876	1195	270	921	1211	315
Stage 1	-	-	-	-	-	-	526	526	-	665	665	-
Stage 2	-	-	-	-	-	-	350	669	-	256	546	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	949	-	-	1025	-	-	243	185	728	225	181	681
Stage 1	-	-	-	-	-	-	503	527	-	416	456	-
Stage 2	-	-	-	-	-	-	639	454	-	726	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	949	-	-	1025	-	-	232	179	728	202	175	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	232	179	-	202	175	-
Stage 1	-	-	-	-	-	-	500	524	-	414	442	-
Stage 2	-	-	-	-	-	-	608	440	-	667	513	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	19.5	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	232	728	949	-	-	1025	-	-	391
HCM Lane V/C Ratio	0.295	0.076	0.003	-	-	0.02	-	-	0.05
HCM Control Delay (s)	26.9	10.4	8.8	0	-	8.6	0.1	-	14.7
HCM Lane LOS	D	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.2	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	208	4	1	162	0	8
Future Vol, veh/h	208	4	1	162	0	8
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	4	1	238	0	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	238	0	357	119
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1326	-	615	910
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1326	-	614	910
Mov Cap-2 Maneuver	-	-	-	-	614	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	890	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1326	-	910
HCM Lane V/C Ratio	-	-	0.001	-	0.025
HCM Control Delay (s)	-	-	7.7	0	9.1
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	212	0	0	162
Future Vol, veh/h	0	0	212	0	0	162
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	259	0	0	198

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	130	0	0	259	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	896	-	-	1303	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	896	-	-	1303	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1303	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	2	517	304	7
Future Vol, veh/h	0	13	2	517	304	7
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	73	82	89	74	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	2	581	411	9

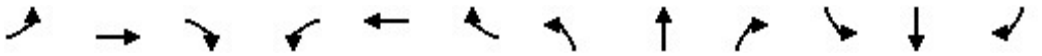
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	652	210	420	0	-	0
Stage 1	416	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	430	796	1136	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	429	796	1136	-	-	-
Mov Cap-2 Maneuver	429	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	743	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1136	-	-	796	-	-
HCM Lane V/C Ratio	0.002	-	-	0.022	-	-
HCM Control Delay (s)	8.2	-	0	9.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

HCM 6th Signalized Intersection Summary
1: Houston Ave. & 3rd St.

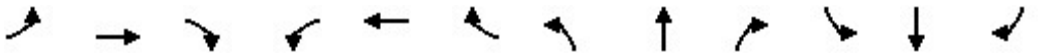
06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	76	247	157	22	2	152	97	188	34	55	56
Future Volume (veh/h)	47	76	247	157	22	2	152	97	188	34	55	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	80	129	386	191	37	3	185	105	235	47	76	78
Peak Hour Factor	0.59	0.59	0.64	0.82	0.59	0.59	0.82	0.92	0.80	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	509	431	443	539	44	554	754	639	123	188	166
Arrive On Green	0.05	0.30	0.30	0.10	0.35	0.35	0.10	0.45	0.45	0.31	0.31	0.31
Sat Flow, veh/h	1603	1683	1427	1603	1536	125	1603	1683	1427	240	613	541
Grp Volume(v), veh/h	80	129	386	191	0	40	185	105	235	201	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1661	1603	1683	1427	1394	0	0
Q Serve(g_s), s	3.0	5.2	23.1	6.9	0.0	1.4	6.6	3.3	9.7	3.2	0.0	0.0
Cycle Q Clear(g_c), s	3.0	5.2	23.1	6.9	0.0	1.4	6.6	3.3	9.7	9.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.23		0.39
Lane Grp Cap(c), veh/h	533	509	431	443	0	582	554	754	639	477	0	0
V/C Ratio(X)	0.15	0.25	0.89	0.43	0.00	0.07	0.33	0.14	0.37	0.42	0.00	0.00
Avail Cap(c_a), veh/h	991	754	639	814	0	744	928	754	639	591	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.7	23.5	29.8	16.9	0.0	19.3	16.3	14.5	16.3	24.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	10.9	0.7	0.0	0.0	0.4	0.4	1.6	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	8.9	2.5	0.0	0.6	2.4	1.3	3.3	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	23.8	40.7	17.6	0.0	19.3	16.7	14.9	17.9	25.3	0.0	0.0
LnGrp LOS	B	C	D	B	A	B	B	B	B	C	A	A
Approach Vol, veh/h		595			231			525			201	
Approach Delay, s/veh		34.3			17.9			16.9			25.3	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	36.3		45.0	12.3	32.0	12.6	32.4				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	5.0	3.4		11.7	8.9	25.1	8.6	11.6				
Green Ext Time (p_c), s	0.2	0.2		1.4	0.5	1.9	0.5	1.2				

Intersection Summary			
HCM 6th Ctrl Delay		24.8	
HCM 6th LOS		C	

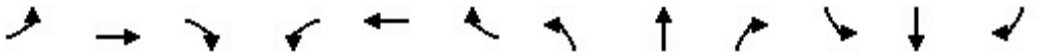


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	658	56	16	83	68	33	273	111	60	249	86
Future Volume (vph)	139	658	56	16	83	68	33	273	111	60	249	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94			0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	2989			3056			3154	1425
Flt Permitted	0.63	1.00	1.00	0.15	1.00			0.89			0.78	1.00
Satd. Flow (perm)	1060	1676	1425	253	2989			2736			2491	1425
Peak-hour factor, PHF	0.69	0.92	0.69	0.65	0.74	0.87	0.85	0.85	0.95	0.66	0.67	0.64
Adj. Flow (vph)	201	715	81	25	112	78	39	321	117	91	372	134
RTOR Reduction (vph)	0	0	44	0	42	0	0	51	0	0	0	81
Lane Group Flow (vph)	201	715	37	25	148	0	0	426	0	0	463	53
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Effective Green, g (s)	28.5	28.5	28.5	28.5	28.5			24.5			24.5	24.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	487	770	655	116	1373			1081			984	563
v/s Ratio Prot		c0.43			0.05							
v/s Ratio Perm	0.19		0.03	0.10				0.16			c0.19	0.04
v/c Ratio	0.41	0.93	0.06	0.22	0.11			0.39			0.47	0.09
Uniform Delay, d1	11.2	15.8	9.3	10.0	9.5			13.4			13.9	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	2.6	19.1	0.2	4.2	0.2			1.1			1.6	0.3
Delay (s)	13.7	34.9	9.5	14.3	9.7			14.5			15.5	12.1
Level of Service	B	C	A	B	A			B			B	B
Approach Delay (s)		28.5			10.2			14.5			14.8	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 7th St. & Lawton Ave.

06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	730	8	61	87	6	10	183	149	9	89	3
Future Volume (veh/h)	266	730	8	61	87	6	10	183	149	9	89	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	345	793	9	86	107	7	11	201	164	11	107	4
Peak Hour Factor	0.77	0.92	0.92	0.71	0.81	0.84	0.91	0.91	0.91	0.82	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	599	1037	12	267	583	38	91	1366	647	140	1247	47
Arrive On Green	0.20	0.32	0.32	0.07	0.19	0.19	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1603	3239	37	1603	3049	198	87	3011	1427	187	2748	104
Grp Volume(v), veh/h	345	391	411	86	56	58	113	99	164	64	0	58
Grp Sat Flow(s),veh/h/ln	1603	1599	1677	1603	1599	1648	1643	1455	1427	1526	0	1513
Q Serve(g_s), s	12.3	17.0	17.0	3.2	2.3	2.3	0.0	3.1	5.5	0.0	0.0	1.7
Cycle Q Clear(g_c), s	12.3	17.0	17.0	3.2	2.3	2.3	3.0	3.1	5.5	1.7	0.0	1.7
Prop In Lane	1.00		0.02	1.00		0.12	0.10		1.00	0.17		0.07
Lane Grp Cap(c), veh/h	599	512	537	267	306	315	797	660	647	747	0	687
V/C Ratio(X)	0.58	0.76	0.76	0.32	0.18	0.19	0.14	0.15	0.25	0.09	0.00	0.09
Avail Cap(c_a), veh/h	1214	1036	1087	882	1244	1282	797	660	647	747	0	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	23.6	23.6	22.6	26.2	26.2	12.3	12.3	13.0	12.0	0.0	12.0
Incr Delay (d2), s/veh	0.9	2.4	2.3	0.7	0.3	0.3	0.4	0.5	0.9	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	6.4	6.7	1.2	0.9	0.9	1.2	1.0	1.8	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	26.0	25.9	23.3	26.4	26.4	12.7	12.8	13.9	12.2	0.0	12.2
LnGrp LOS	B	C	C	C	C	C	B	B	B	B	A	B
Approach Vol, veh/h		1147			200			376			122	
Approach Delay, s/veh		23.5			25.1			13.3			12.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.4	19.2		39.5	8.4	29.2		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	14.3	4.3		7.5	5.2	19.0		3.7				
Green Ext Time (p_c), s	1.1	0.7		1.8	0.2	5.7		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		20.8	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	0	33	0	0	0	74	398	3	4	369	86
Future Vol, veh/h	39	0	33	0	0	0	74	398	3	4	369	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	50	50	88	88	88	77	89	90	38	67	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	0	66	0	0	0	96	447	3	11	551	126

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1007	1278	339	939	1340	225	677	0	0	450	0	0
Stage 1	636	636	-	641	641	-	-	-	-	-	-	-
Stage 2	371	642	-	298	699	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	222	165	657	246	151	663	911	-	-	715	-	-
Stage 1	420	470	-	362	468	-	-	-	-	-	-	-
Stage 2	588	467	-	662	440	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	202	146	657	201	133	663	911	-	-	715	-	-
Mov Cap-2 Maneuver	202	146	-	201	133	-	-	-	-	-	-	-
Stage 1	376	463	-	324	419	-	-	-	-	-	-	-
Stage 2	526	418	-	586	433	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.6	0	1.7	0.2
HCM LOS	D	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	911	-	-	202	657	-	-	715	-	-
HCM Lane V/C Ratio	0.105	-	-	0.508	0.1	-	-	0.015	-	-
HCM Control Delay (s)	9.4	-	-	39.9	11.1	0	0	10.1	-	-
HCM Lane LOS	A	-	-	E	B	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	2.6	0.3	-	-	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	828	56	56	134	12	16	0	23	2	0	4
Future Vol, veh/h	4	828	56	56	134	12	16	0	23	2	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	89	89	58	80	80	65	79	79	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	930	63	97	168	15	25	0	29	2	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	993	0	0	1258	1357	497	853	1381	92
Stage 1	-	-	-	-	-	-	980	980	-	370	370	-
Stage 2	-	-	-	-	-	-	278	377	-	483	1011	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1389	-	-	692	-	-	128	148	519	253	143	947
Stage 1	-	-	-	-	-	-	268	326	-	622	619	-
Stage 2	-	-	-	-	-	-	705	614	-	534	315	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1389	-	-	692	-	-	111	123	519	208	119	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	111	123	-	208	119	-
Stage 1	-	-	-	-	-	-	264	321	-	613	522	-
Stage 2	-	-	-	-	-	-	592	518	-	496	310	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	4.1	27.9	13.4
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	111	519	1389	-	-	692	-	-	434
HCM Lane V/C Ratio	0.222	0.056	0.006	-	-	0.14	-	-	0.016
HCM Control Delay (s)	46.4	12.3	7.6	0.1	-	11	0.4	-	13.4
HCM Lane LOS	E	B	A	A	-	B	A	-	B
HCM 95th %tile Q(veh)	0.8	0.2	0	-	-	0.5	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	448	7	1	101	0	3
Future Vol, veh/h	448	7	1	101	0	3
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	84	83	84	84	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	533	8	1	120	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	541	0	599	271
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1024	-	433	727
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1024	-	433	727
Mov Cap-2 Maneuver	-	-	-	-	433	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	952	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1024	-	727
HCM Lane V/C Ratio	-	-	0.001	-	0.005
HCM Control Delay (s)	-	-	8.5	0	10
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	455	0	0	101
Future Vol, veh/h	0	0	455	0	0	101
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	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	517	0	0	115

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	259	0	0	517	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	740	-	-	1045	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	740	-	-	1045	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1045	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

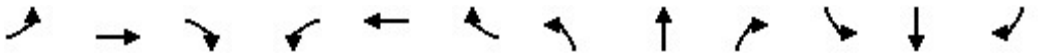
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	5	474	389	13
Future Vol, veh/h	0	6	5	474	389	13
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	63	88	88	67	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	6	539	581	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	835	317	633	0	-	0
Stage 1	607	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	339	679	946	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	337	679	946	-	-	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	750	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.1	0
HCM LOS	B		

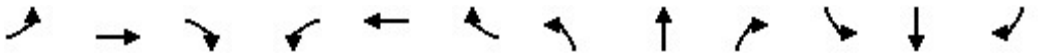
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	946	-	-	679	-	-
HCM Lane V/C Ratio	0.006	-	-	0.014	-	-
HCM Control Delay (s)	8.8	-	0	10.4	-	-
HCM Lane LOS	A	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	46	157	117	40	17	258	141	237	21	59	87
Future Volume (veh/h)	27	46	157	117	40	17	258	141	237	21	59	87
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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	29	49	178	189	55	23	293	160	370	26	74	109
Peak Hour Factor	0.94	0.94	0.88	0.62	0.73	0.73	0.88	0.88	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	267	226	434	276	115	689	912	773	88	208	262
Arrive On Green	0.03	0.16	0.16	0.12	0.24	0.24	0.15	0.54	0.54	0.35	0.35	0.35
Sat Flow, veh/h	1603	1683	1427	1603	1127	471	1603	1683	1427	94	596	752
Grp Volume(v), veh/h	29	49	178	189	0	78	293	160	370	209	0	0
Grp Sat Flow(s),veh/h/ln	1603	1683	1427	1603	0	1598	1603	1683	1427	1441	0	0
Q Serve(g_s), s	1.1	1.9	8.9	6.8	0.0	2.9	7.9	3.6	11.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	1.9	8.9	6.8	0.0	2.9	7.9	3.6	11.8	7.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	0.12		0.52
Lane Grp Cap(c), veh/h	335	267	226	434	0	391	689	912	773	558	0	0
V/C Ratio(X)	0.09	0.18	0.79	0.44	0.00	0.20	0.43	0.18	0.48	0.37	0.00	0.00
Avail Cap(c_a), veh/h	937	912	773	887	0	866	1107	912	773	728	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.7	26.9	29.9	20.1	0.0	22.1	10.3	8.6	10.5	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	6.0	0.7	0.0	0.2	0.4	0.4	2.1	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	3.3	2.5	0.0	1.1	2.5	1.3	3.7	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	27.2	35.9	20.8	0.0	22.4	10.8	9.0	12.6	18.5	0.0	0.0
LnGrp LOS	C	C	D	C	A	C	B	A	B	B	A	A
Approach Vol, veh/h		256			267			823			209	
Approach Delay, s/veh		33.0			21.2			11.2			18.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	23.1		45.0	12.1	16.7	14.2	30.8				
Change Period (Y+Rc), s	3.5	5.0		5.0	3.0	5.0	3.5	5.0				
Max Green Setting (Gmax), s	30.0	40.0		40.0	30.0	40.0	30.0	35.0				
Max Q Clear Time (g_c+I1), s	3.1	4.9		13.8	8.8	10.9	9.9	9.6				
Green Ext Time (p_c), s	0.0	0.4		2.3	0.5	0.9	0.8	1.4				

Intersection Summary												
HCM 6th Ctrl Delay			17.5									
HCM 6th LOS			B									

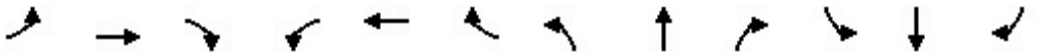


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	216	38	161	424	153	42	323	78	48	240	76
Future Volume (vph)	140	216	38	161	424	153	42	323	78	48	240	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1593	1676	1425	1593	3064			3087			3159	1425
Flt Permitted	0.27	1.00	1.00	0.59	1.00			0.89			0.82	1.00
Satd. Flow (perm)	460	1676	1425	993	3064			2753			2605	1425
Peak-hour factor, PHF	0.80	0.85	0.84	0.76	0.67	0.71	0.95	0.95	0.95	0.75	0.75	0.75
Adj. Flow (vph)	175	254	45	212	633	215	44	340	82	64	320	101
RTOR Reduction (vph)	0	0	22	0	54	0	0	29	0	0	0	66
Lane Group Flow (vph)	175	254	23	212	794	0	0	437	0	0	384	35
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		2
Actuated Green, G (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Effective Green, g (s)	31.5	31.5	31.5	31.5	31.5			21.5			21.5	21.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.35			0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5			4.5	4.5
Lane Grp Cap (vph)	233	851	723	504	1556			954			903	494
v/s Ratio Prot		0.15			0.26							
v/s Ratio Perm	c0.38		0.02	0.21				c0.16			0.15	0.02
v/c Ratio	0.75	0.30	0.03	0.42	0.51			0.46			0.43	0.07
Uniform Delay, d1	12.1	8.8	7.6	9.5	10.1			15.7			15.5	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	19.8	0.9	0.1	2.6	1.2			1.6			1.5	0.3
Delay (s)	31.9	9.7	7.7	12.1	11.3			17.3			17.0	13.8
Level of Service	C	A	A	B	B			B			B	B
Approach Delay (s)		17.7			11.5			17.3			16.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 7th St. & Lawton Ave.

06/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	296	8	90	468	34	11	138	80	6	182	8
Future Volume (veh/h)	80	296	8	90	468	34	11	138	80	6	182	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	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	110	405	11	97	678	49	13	168	98	8	233	10
Peak Hour Factor	0.73	0.73	0.73	0.93	0.69	0.70	0.84	0.82	0.82	0.77	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	950	26	381	907	66	120	1367	670	70	1408	59
Arrive On Green	0.07	0.30	0.30	0.07	0.30	0.30	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1603	3181	86	1603	3025	218	139	2911	1427	40	2998	126
Grp Volume(v), veh/h	110	203	213	97	358	369	96	85	98	132	0	119
Grp Sat Flow(s),veh/h/ln	1603	1599	1668	1603	1599	1644	1594	1455	1427	1656	0	1509
Q Serve(g_s), s	3.5	7.6	7.6	3.0	15.1	15.1	0.0	2.4	2.9	0.0	0.0	3.4
Cycle Q Clear(g_c), s	3.5	7.6	7.6	3.0	15.1	15.1	2.4	2.4	2.9	3.4	0.0	3.4
Prop In Lane	1.00		0.05	1.00		0.13	0.14		1.00	0.06		0.08
Lane Grp Cap(c), veh/h	272	478	498	381	480	493	803	683	670	829	0	709
V/C Ratio(X)	0.40	0.43	0.43	0.25	0.75	0.75	0.12	0.12	0.15	0.16	0.00	0.17
Avail Cap(c_a), veh/h	1128	1073	1119	1021	1287	1323	803	683	670	829	0	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	21.0	21.0	16.2	23.5	23.5	11.1	11.1	11.3	11.4	0.0	11.4
Incr Delay (d2), s/veh	1.0	0.6	0.6	0.3	2.3	2.3	0.3	0.4	0.5	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.8	2.9	1.1	5.7	5.8	0.9	0.8	0.9	1.2	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	21.6	21.6	16.6	25.9	25.8	11.4	11.5	11.7	11.8	0.0	11.9
LnGrp LOS	B	C	C	B	C	C	B	B	B	B	A	B
Approach Vol, veh/h		526			824			279			251	
Approach Delay, s/veh		21.0			24.8			11.6			11.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	26.9		39.5	8.3	26.8		39.5				
Change Period (Y+Rc), s	3.0	4.5		4.5	3.0	4.5		4.5				
Max Green Setting (Gmax), s	45.0	60.0		35.0	35.0	50.0		35.0				
Max Q Clear Time (g_c+I1), s	5.5	17.1		4.9	5.0	9.6		5.4				
Green Ext Time (p_c), s	0.3	5.3		1.4	0.2	2.7		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		20.0	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	0	74	8	3	5	39	538	36	14	276	43
Future Vol, veh/h	92	0	74	8	3	5	39	538	36	14	276	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	260	-	-	50	-	-	130	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	63	63	33	33	33	77	89	90	33	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	159	0	117	24	9	15	51	604	40	42	383	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	845	1243	222	1002	1253	322	443	0	0	644	0	0
Stage 1	497	497	-	726	726	-	-	-	-	-	-	-
Stage 2	348	746	-	276	527	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	284	173	782	224	171	575	1113	-	-	579	-	-
Stage 1	507	543	-	316	428	-	-	-	-	-	-	-
Stage 2	607	419	-	682	527	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	241	153	782	174	151	575	1113	-	-	579	-	-
Mov Cap-2 Maneuver	241	153	-	174	151	-	-	-	-	-	-	-
Stage 1	484	503	-	301	408	-	-	-	-	-	-	-
Stage 2	551	400	-	538	489	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.1	24.1	0.6	1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	241	782	174	280	579	-	-
HCM Lane V/C Ratio	0.046	-	-	0.658	0.15	0.139	0.087	0.073	-	-
HCM Control Delay (s)	8.4	-	-	44.7	10.4	29	19.1	11.7	-	-
HCM Lane LOS	A	-	-	E	B	D	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.1	0.5	0.5	0.3	0.2	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	346	34	20	516	6	65	0	42	5	0	11
Future Vol, veh/h	2	346	34	20	516	6	65	0	42	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	70	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	58	58	80	70	70	79	63	63	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	597	59	25	737	9	82	0	67	6	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	746	0	0	656	0	0	1052	1429	328	1097	1454	373
Stage 1	-	-	-	-	-	-	633	633	-	792	792	-
Stage 2	-	-	-	-	-	-	419	796	-	305	662	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	858	-	-	927	-	-	181	134	668	168	129	624
Stage 1	-	-	-	-	-	-	434	472	-	349	399	-
Stage 2	-	-	-	-	-	-	582	397	-	680	457	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	858	-	-	927	-	-	170	127	668	145	122	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	127	-	145	122	-
Stage 1	-	-	-	-	-	-	431	469	-	347	381	-
Stage 2	-	-	-	-	-	-	543	379	-	608	454	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	29.6	17.5
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	170	668	858	-	-	927	-	-	307
HCM Lane V/C Ratio	0.484	0.1	0.003	-	-	0.027	-	-	0.064
HCM Control Delay (s)	44.6	11	9.2	0	-	9	0.2	-	17.5
HCM Lane LOS	E	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.3	0.3	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	248	4	1	196	0	8
Future Vol, veh/h	248	4	1	196	0	8
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	89	89	68	68	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	279	4	1	288	0	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	283	0	427	142
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1276	-	556	880
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1276	-	555	880
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	865	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1276	-	880
HCM Lane V/C Ratio	-	-	0.001	-	0.026
HCM Control Delay (s)	-	-	7.8	0	9.2
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	252	0	0	196
Future Vol, veh/h	0	0	252	0	0	196
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	307	0	0	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	154	0	0	307	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	864	-	-	1250	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	864	-	-	1250	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1250	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	2	613	351	7
Future Vol, veh/h	0	13	2	613	351	7
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	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	73	82	89	74	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	2	689	474	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	759	242	483	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.29	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.67	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	374	759	1076	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	759	1076	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	705	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1076	-	-	759	-	-
HCM Lane V/C Ratio	0.002	-	-	0.023	-	-
HCM Control Delay (s)	8.4	-	0	9.9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

PROPOSED TULSA VA HOSPITAL TRAFFIC STUDY

U.S. Department of Veterans Affairs (VA)

Office of Construction and Facilities Management

June 2022

Project No. 021-07771