

Traffic Impact Study Proposed Parking Garage Fenwick High School Campus

Oak Park, Illinois



Prepared For:



February 1, 2019

1. Introduction

A traffic impact study was conducted for the proposed parking garage on the Fenwick High School Campus (FHS Campus), which is located at 505 Washington Boulevard in Oak Park, Illinois. The FHS Campus is generally bordered by Washington Boulevard to the north, Madison Street to the south, East Avenue to the west, and multi-family residential buildings/Scoville Avenue to the east.

The design development plans call for an approximate 350-space parking garage to be located on the eastern portion of the campus. Two multi-family residential buildings will be razed to accommodate the proposed parking garage. Vehicle parking for faculty and staff is provided via a surface parking lot on the FHS Campus site. Student parking is currently provided via a portion of a surface parking lot on the FHS Campus, an off-site surface parking lot located in the northeast quadrant of the intersection of Oak Park Avenue and Madison Street, as well as several designated on-street parking areas on the surrounding roadway network. The parking garage is to provide on-site parking for students and potentially decrease the need for the off-site parking lot, as well as the designated on-street parking areas.

Vehicle access to the FHS Campus is provided via access drives off East Avenue, Madison Street, and from an east-west public alley that extends between East Avenue and Scoville Avenue.

Traffic capacity analyses were conducted for the following three conditions.

- *Year 2018 (Existing) Conditions.* This condition analyzes the existing weekday morning, weekday afternoon (school dismissal) and weekday evening peak hours to establish a base condition.
- *Year 2023 (Future) Base Conditions with Road Diet.* This condition analyzes Year 2023 traffic volumes assuming the recently approved road diet plans for Madison Street by the Village of Oak Park. These plans would reduce the cross-section of Madison Street from a five-lane cross-section to a three-lane cross-section (one through lane in each direction with a center lane providing left-turn storage) at all signalized and unsignalized intersections and exclusive right-turn lanes at key intersections. This condition also assumes a diversion of traffic to the north and south of Madison Street, in addition to a regional growth factor of one percent.
- *Year 2023 (Future Total) Conditions.* This condition includes the Year 2023 Base Conditions with Road Diet and the addition of the existing FHS traffic accessing the current off-site parking lot and on-street parking reassigned to the FHS Campus resulting from the proposed garage.

The sections of this report present the following:

- Existing roadway conditions including vehicle, pedestrian, and bicycle traffic volumes for the weekday morning (school arrival), weekday afternoon (school dismissal) and weekday evening peak hours
- A description of the existing FHS Campus and internal circulation
- Vehicle trip generation for the FHS Campus with the addition of the parking garage
- Regional growth in traffic on the adjacent roadways
- Future transportation conditions assuming the Madison Street Road Diet implementation
- Future transportation conditions including access to and from the FHS Campus
- Recommendations to improve existing and projected traffic conditions assuming road diet conditions

The purpose of this study is three-fold:

- To quantify and analyze the existing traffic volumes accessing the FHS Campus driveways and the off-campus parking lot during school peak arrival and dismissal time periods to establish a base condition.
- To determine if the access driveways and adjoining roadway network intersections have adequate capacity to accommodate projected traffic volumes that include the implementation of the Madison Street road diet plan, the transference of the off-site parking lot traffic to the FHS Campus resulting from the proposed parking garage, and regional growth in traffic on the adjacent roadways.
- To analyze existing drop-off/pick-up procedures during peak arrival/dismissal periods to recommend traffic control and/or roadway improvements to enhance existing conditions with respect to traffic circulation within and surrounding the FHS Campus with the addition of the proposed parking garage.

2. Existing Conditions

Existing traffic and roadway conditions were documented based on field visits and traffic counts conducted by KLOA, Inc. The following provides a detailed description of the physical characteristics of the roadways including geometry and traffic control, adjacent land uses and peak hour traffic flows along area roadways.

Site Location

The FHS Campus is located at 505 Washington Boulevard in Oak Park, Illinois and is generally bordered by Washington Boulevard to the north, Madison Street to the south, East Avenue to the west, and multi-family residential buildings/Scoville Avenue to the east. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial of the site in relation to the area roadway system.

Surrounding Land Uses

Land uses surrounding the FHS Campus include residential neighborhoods to the north of Washington Boulevard and commercial/residential properties to the south of Madison Street, west of East Avenue, and east of Scoville Avenue.

Existing Roadway System Characteristics

The general characteristics of the roadways surrounding the FHS Campus are detailed below and shown in **Figure 3**. All roadways are under the jurisdiction of the Village of Oak Park, unless otherwise stated.

East Avenue is a north-south roadway providing one through lane in each direction. It is signalized at its intersections with Washington Boulevard and Madison Street. On-street parking with restrictions is provided on both sides of the roadway. The posted speed limit is 25 mph and sidewalks and crosswalks are provided.

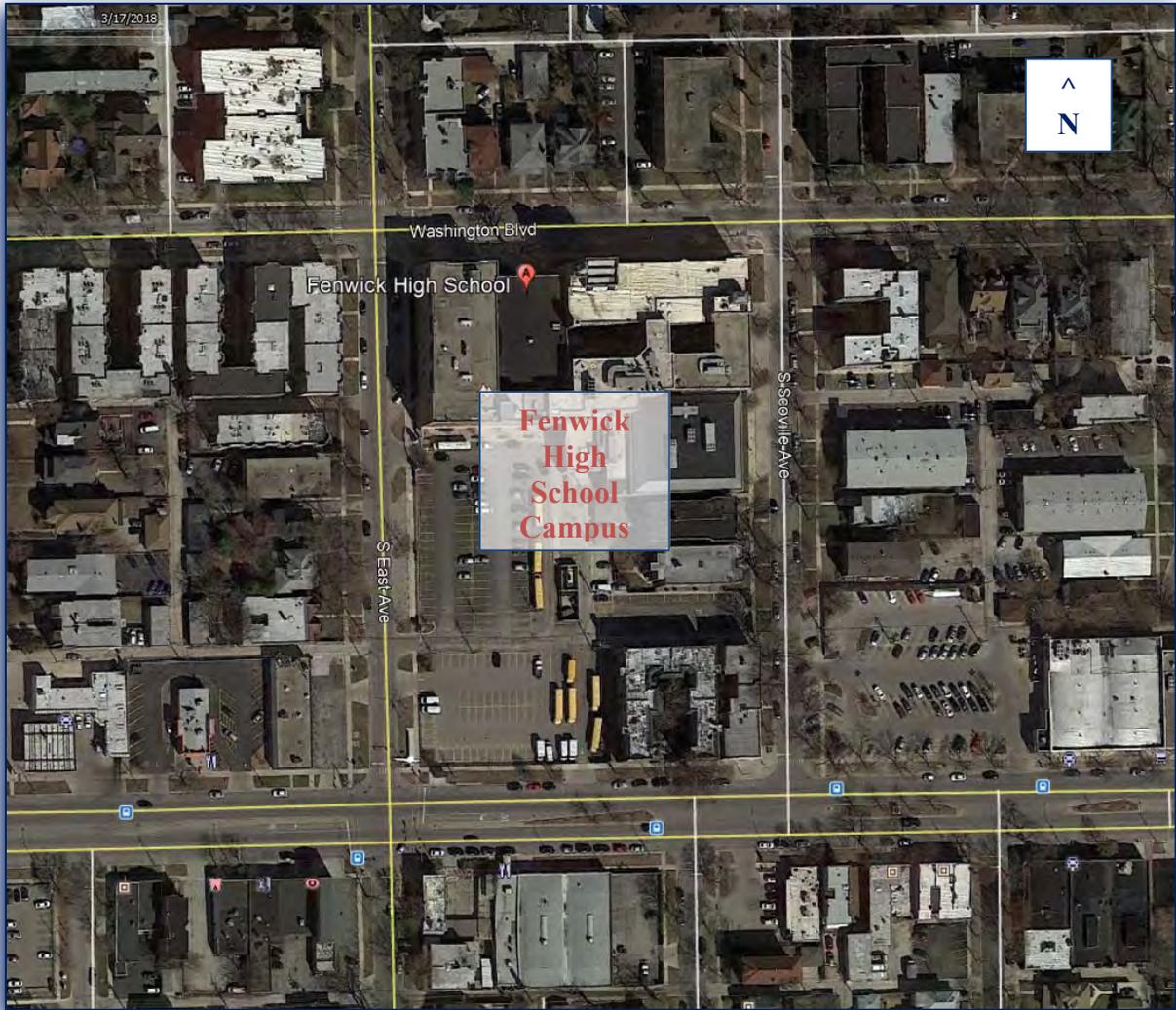
Madison Street is an east-west arterial roadway providing two through lanes in each direction with exclusive left-turn lanes at East Avenue and Scoville Avenue. On-street parking with restrictions is provided on both sides of the roadway. The posted speed limit is 30 mph, and sidewalks and crosswalks are provided.

Washington Boulevard is an east-west unmarked State highway providing one through lane in each direction. On-street parking with restrictions is provided on both sides of the roadway. The posted speed limit is 30 mph, and sidewalks and crosswalks are provided. Washington Boulevard is under the jurisdiction of the Illinois Department of Transportation (IDOT).



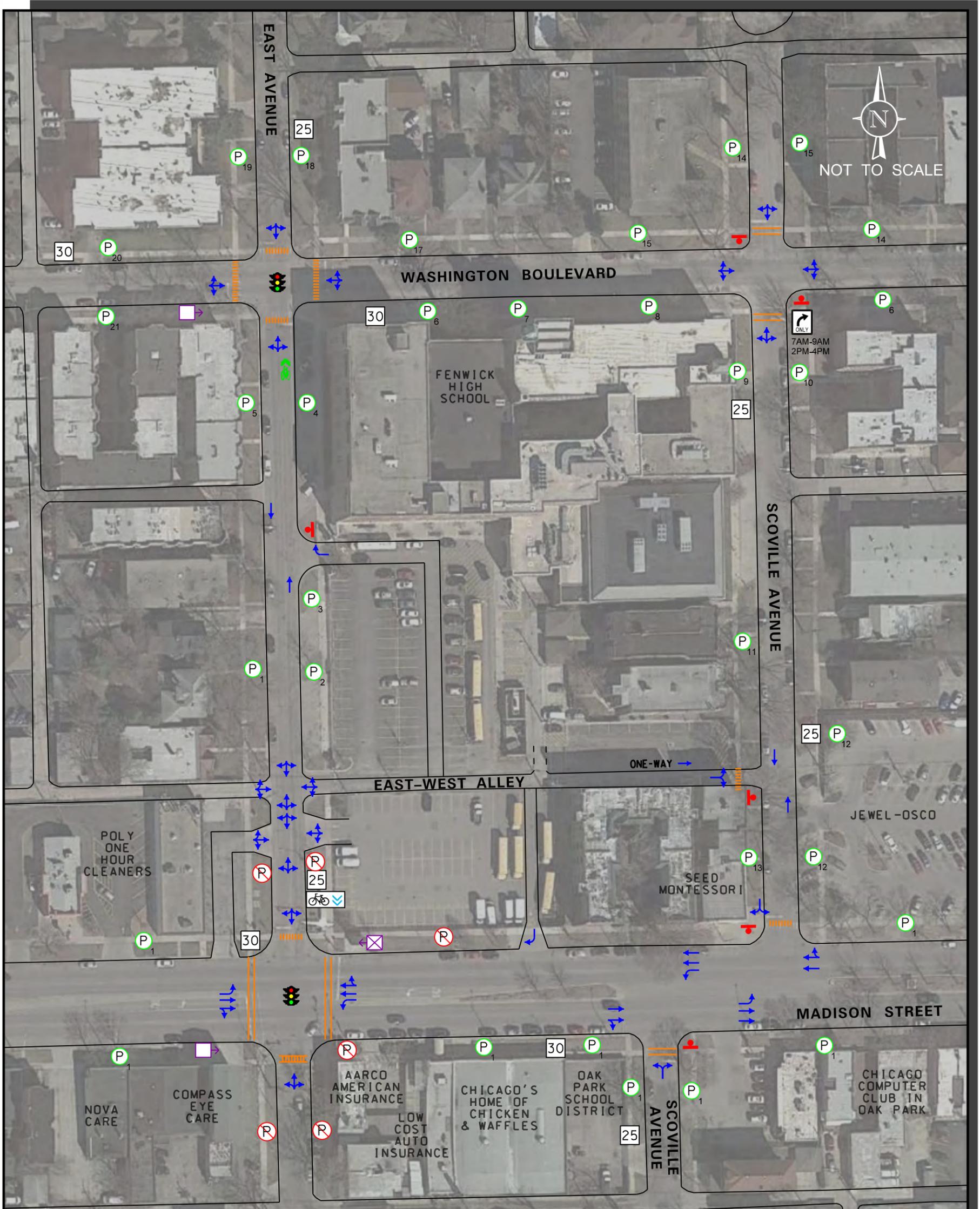
Site Location

Figure 1



Aerial View of Subject Site

Figure 2



LEGEND			
	- TRAVEL LANE		
	- TRAFFIC SIGNAL		
	- STOP SIGN		
	- SPEED LIMIT		
	- ON-STREET PARKING		
	- NO PARKING		
	- BUS STOP		
	- BUS STOP WITH SHELTER		
	- DIVVY STATION		
	- STANDARD CROSSWALK		
	- HIGH VISIBILITY CROSSWALK		
	- 2 HR PARKING 9AM-5PM M-SAT		- NO PARKING 4PM-5PM TUESDAY PERMIT S4 PARKING ONLY 8AM-4PM M-F PERMIT Y6 PARKING ONLY 10PM-6AM
	- METER PARKING 8AM-6PM M-SAT, NO PARKING 10PM-6AM Y5 PERMIT PARKING 10PM-6AM 7 DAYS A WEEK		- PERMIT E7 PARKING ONLY 8AM-4PM M-F NO PARKING 7AM-8AM, 4PM-6PM M-F
	- LOT 70 3 HR & PERMIT PARKING 3 HR PARKING 9AM-5PM M-F ONLY DAY PERMIT 6AM-8PM M-F 24 HR PERMIT 7 DAYS A WEEK		- NO PARKING 3PM-5PM TUESDAY PERMIT Y6 PARKING ONLY 10PM-6AM PERMIT E8 PARKING ONLY 8AM-4PM M-F
	- LOT 70 PERMIT PARKING 24 HRS 7 DAYS A WEEK		- NO PARKING 3PM-5PM WEDNESDAY PERMIT Y5 PARKING ONLY 10PM-6AM 2 HR PARKING 9AM-5PM M-F
	- PERMIT Y5 PARKING ONLY 10PM-6AM PERMIT K4 PARKING ONLY 8AM-4PM M-F		- PERMIT S4 PARKING ONLY 8AM-4PM M-F PERMIT Y5 PARKING ONLY 10PM-6AM NO PARKING 4PM-5PM TUESDAY
	- PERMIT S4 PARKING ONLY 8AM-4PM M-F		- PERMIT E8 PARKING ONLY 8AM-4PM M-F NO PARKING 8AM-9AM, 4PM-6PM M-F
	- 1 HR PARKING 9AM-2PM M-F		
	- NO PARKING STUDENT LOADING ZONE 7AM-9AM, 2PM-4PM PERMIT S4 PARKING ONLY 8AM-4PM M-F 1 HR PARKING 9AM-2PM M-F		- NO PARKING LOADING DROP OFF ZONE 2PM-4PM 1 HR PARKING 9AM-2PM M-F
			- NO PARKING 8AM-10AM M-SAT PERMIT Y6 PARKING ONLY 10PM-6AM
			- LOT 109 METER & PERMIT METER PARKING 8AM-6PM M-SAT NO PUBLIC PARKING 10PM-6AM NIGHT PERMIT 10PM-6AM 7 DAYS A WEEK
			- LOT 110 PERMIT PARKING 24 HRS 7 DAYS A WEEK
			- 2 HR PARKING 10AM-5PM M-SAT PERMIT PARKING ONLY 10PM-10AM NO PARKING 8AM-10PM WEDNESDAY
			- PERMIT E6 PARKING ONLY 8AM-4PM M-F
			- LOT 81 2HR & PERMIT PARKING 2 HR PARKING 9AM-5PM M-SAT NIGHT PERMIT 6PM-8AM M-F 24 HOURS SAT-SUN

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PARKING GARAGE
OAK PARK, ILLINOIS

EXISTING ROADWAY CHARACTERISTICS

Scoville Avenue is a north-south roadway that provides one lane in each direction and has an offset intersection with Madison Street. On-street parking with restrictions is provided on both sides of the roadway. The posted speed limit is 25 mph, and sidewalks and crosswalks are provided.

East-West Public Alley extends from its T-intersection with Scoville Avenue to west of East Avenue. East of East Avenue, the alley, along with the adjacent FHS driveway, becomes the main driveway to the FHS Campus and allows two-way traffic between East Avenue and FHS; between FHS and Scoville Avenue, the alley has a one-way eastbound orientation. Two-way traffic is generally permitted for local residents only. It should be noted that this portion of the alley is not formally a one-way alley per code. As part of the development, the alley is being requested to be vacated and become FHS property.

FHS Campus Vehicle Access

Access to the FHS Campus is primarily from five access driveways, as described below.

Main Access/Alley and East Avenue. As noted, the east-west public alley serves as the main access drive to the FHS Campus. This access is primarily used for the drop-off and pick-up of students by passenger vehicles during the peak arrival/dismissal periods of FHS, as well as accessing the faculty/staff parking lot. The access provides one lane inbound and one lane outbound under stop sign control. School buses enter the FHS Campus from this access drive.

Exit Access and East Avenue. Located approximately 190 feet north of the Main Access/Alley, the one-way drop-off/pick-up drive aisle extends north from the Main Access/alley and back west to its T-intersection with East Avenue and provides one lane outbound under stop sign control. Signage restricts exiting movements to right-turns only.

South Parking Lot Access and East Avenue. Located approximately 90 feet south of the Main Access/Alley, this full access is in alignment with the dry cleaners' access drive on the west side of East Avenue. The South Parking Lot Access drive provides one lane inbound and one lane outbound under stop sign control. This access primarily serves the limited student parking and some additional faculty/staff parking. This access is also used as a secondary drop-off/pick-up system for passenger vehicles.

Exit Access and Madison Street. Located approximately 110 feet west of Scoville Avenue (West) and approximately 230 feet east of East Avenue, this access extends between the Main Access/Alley and Madison Street, and has a one-way southbound orientation, providing one lane outbound under stop sign control. Signage restricts exiting movements to right-turns only.

Alley (Exit only) and Scoville Avenue. The east-west public alley extends east to Scoville Avenue under stop sign control. This portion of the alley is used by neighboring residents, as well as some exiting traffic from the FHS Campus. The alley has a one-way eastbound orientation between FHS Campus and Scoville Avenue allowing for two-way traffic for local residents.

Madison Street Planned Improvements

The Village of Oak Park is proposing a road diet for the Madison Street corridor in order to enhance conditions for all modes of transportation and to install bike lanes along both sides of Madison Street. As proposed, Madison Street will be improved and/or modified as follows:

- *Madison Street - Oak Park Avenue to Austin Boulevard:* This section of Madison Street, which includes the intersections of East Avenue and Scoville Avenues, will be modified to generally provide a 14-foot median, one 12-foot vehicle lane in each direction, one nine-foot buffered bike lane in each direction, and nine-foot parking lanes on each side of the road.

In addition, a number of enhancements to the pedestrian and bicycle facilities are proposed along the corridor, including dedicated bike lanes, bus stops, high visibility, ladder style crosswalks, pedestrian refuge islands and curb extensions, and additional pedestrian crossing signage.

It should be noted that the Village is contemplating removing the landscaped medians located on Madison Street between Oak Park Avenue and Austin Boulevard. With the elimination of the medians, Madison Street is proposed to generally provide a three-lane cross section (one lane in each direction and a center striped median) with protected bike lanes and parking on both sides of the road. The alternative design provides for left-turn channelization at unsignalized intersections and longer left-turn lanes at signalized intersections, all of which will improve operations and safety as it will minimize the left-turn queuing that extends into through lanes. Further, the protected bike lanes will enhance bicycle operations and safety. In addition, it should be noted that the plans call for providing exclusive eastbound and westbound right-turn lanes also serving as bus stops will be provided on Madison Street at its intersection with East Avenue.

Existing Traffic Volumes

Vehicle, pedestrian, and bicycle movement traffic counts were conducted on Tuesday, May 15, 2018 from 7:00 A.M. to 9:00 A.M. and from 2:30 to 6:30 P.M. at the following eleven (11) intersections. It is important to note that the traffic counts were conducted on a typical school day while FHS was in session.

1. East Avenue and Madison Street (signalized)
2. East Avenue and Washington Boulevard (signalized)
3. Scoville Avenue (West) and Madison Street (stop sign control)
4. Scoville Avenue (East) and Madison Street (stop sign control)
5. Scoville Avenue and Washington Boulevard (stop sign control)
6. East Avenue and FHS Main Access/Alley (stop sign control)
7. East Avenue and FHS Exit Access (stop sign control)
8. East Avenue and FHS South Access (stop sign control)
9. Scoville Avenue and Alley (stop sign control)
10. Madison Street and FHS Exit Access (stop sign control)
11. Internal FHS Main Access/Alley and FHS Exit Access Drive (stop sign control)

In addition, traffic counts were also conducted at the access drives serving the off-site parking lot located at the intersection of Oak Park Avenue and Madison Street.

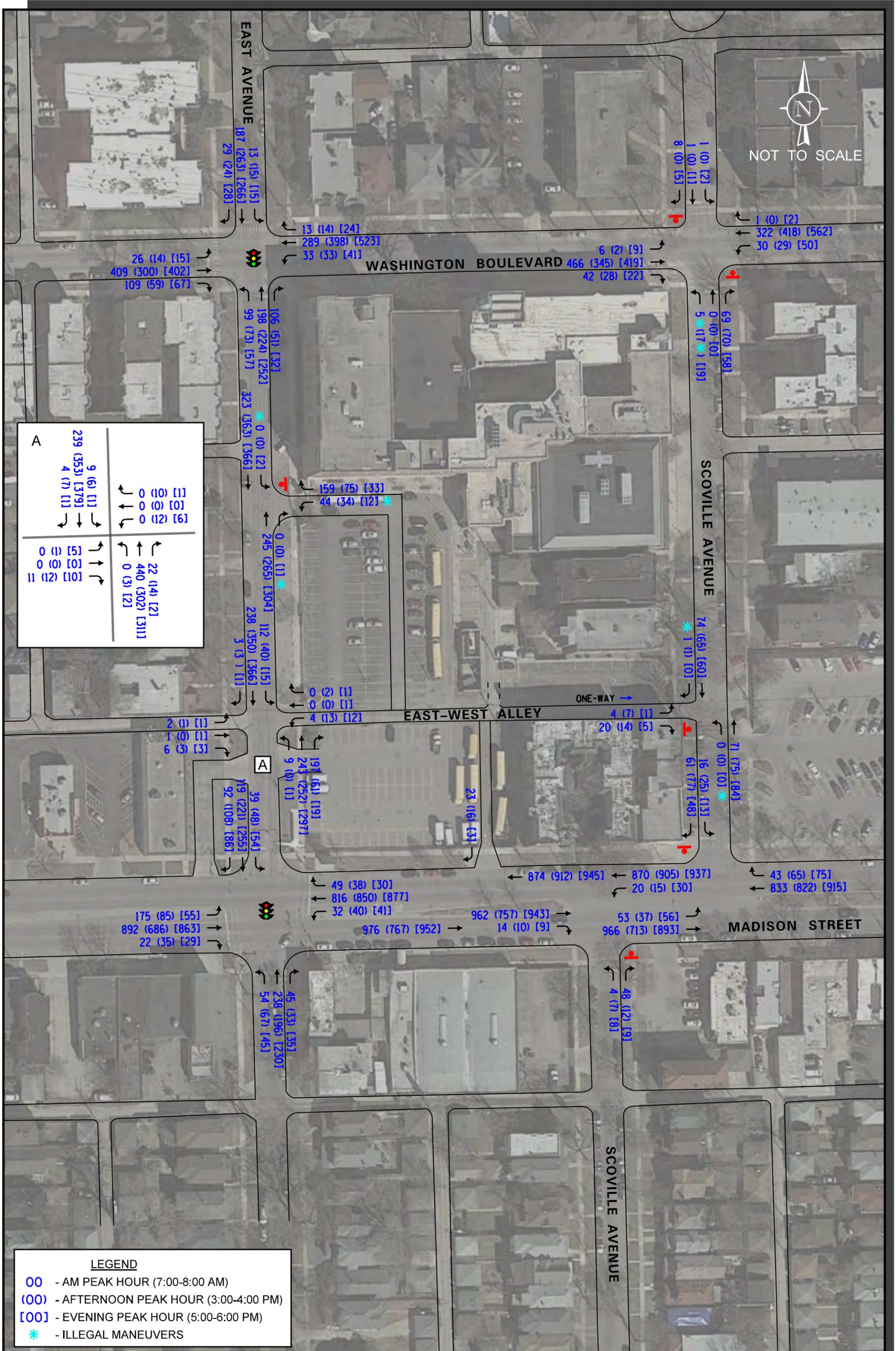
From the turning movement count data, it was determined that the weekday morning peak hour generally occurs between 7:00 and 8:00 A.M., the weekday afternoon peak hour occurs between 3:00 and 4:00 P.M., and the weekday evening peak hour generally occurs between 5:00 and 6:00 P.M. It is important to note that the morning and afternoon peak hours coincide with the FHS Campus bell schedule, as the typical FHS school day begins at 8:00 A.M. and dismisses at 3:10 P.M.

The existing peak hour vehicle traffic volumes are shown in **Figure 4**. The existing peak hour pedestrian and bicycle traffic volumes are shown in **Figure 5**.

As shown in Figure 4, a majority of the drop-off/pick-up vehicles enter the FHS Campus from the Main Access/Alley access off East Avenue. The existing volumes further show that, although exiting movements are restricted via signage to right-turns only, there are a high volume of vehicles making illegal exiting left-turn movements from the Exit Only access off East Avenue. Also, due to the congestion along East Avenue and the high volume of vehicles turning onto the Main Access during peak drop-off/pick-up times, there are a low volume of vehicles exiting onto East Avenue from the Main Access drive, as well as the South Access drive. The existing volumes show that vehicles are also either travelling east and exiting onto Scoville Avenue via the one-way eastbound alley access, or exiting onto Madison Street via the exit access drive.



NOT TO SCALE



A	
239 (353) [379]	9 (6) [1]
4 (7) [1]	0 (0) [0]
0 (0) [0]	0 (0) [0]
0 (0) [0]	0 (0) [0]
11 (12) [10]	22 (14) [2]
0 (0) [0]	440 (302) [311]
0 (0) [0]	0 (3) [2]

LEGEND

00 - AM PEAK HOUR (7:00-8:00 AM)

(00) - AFTERNOON PEAK HOUR (3:00-4:00 PM)

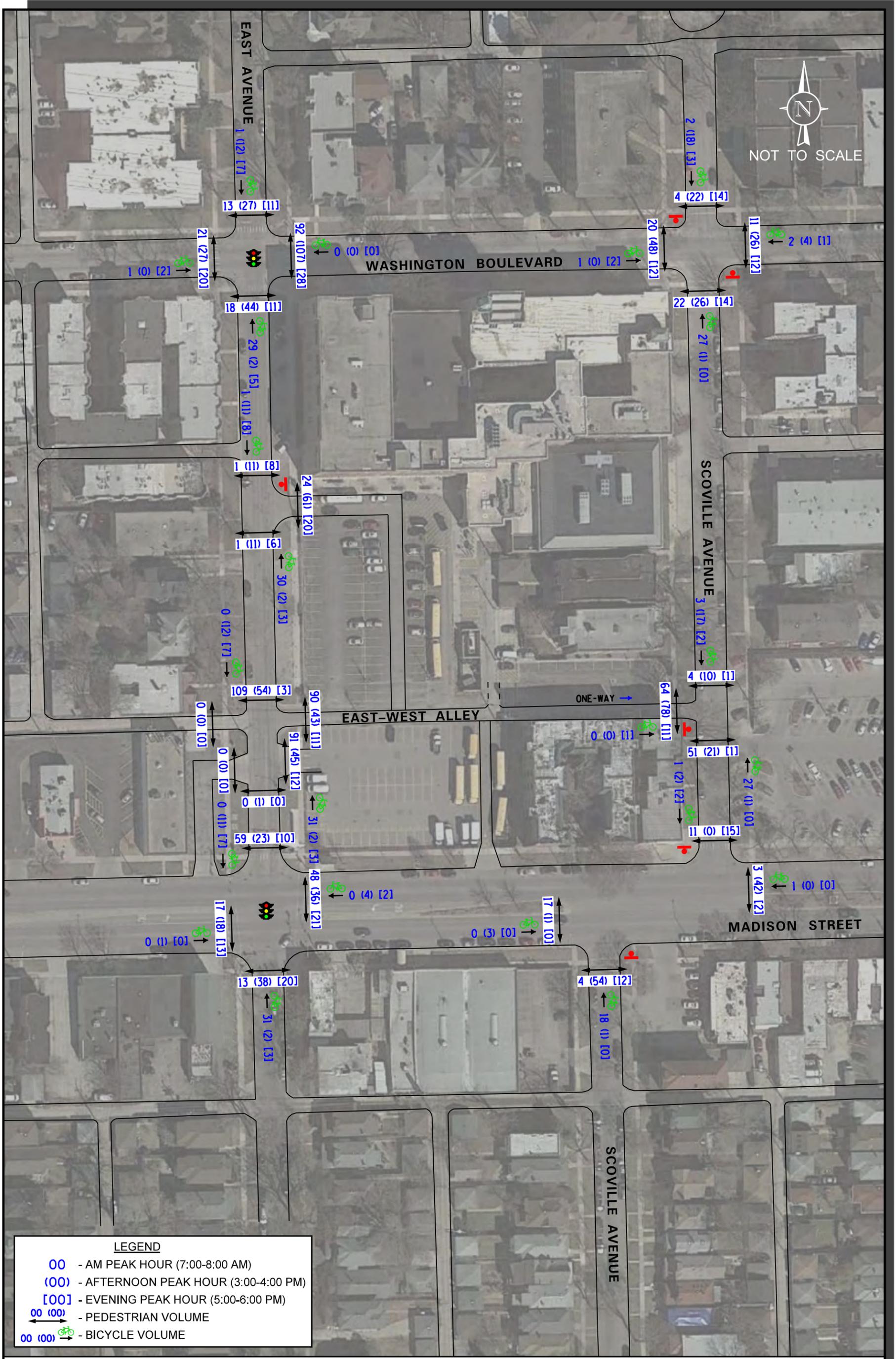
[00] - EVENING PEAK HOUR (5:00-6:00 PM)

* - ILLEGAL MANEUVERS

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EXISTING TRAFFIC VOLUMES





LEGEND	
00	- AM PEAK HOUR (7:00-8:00 AM)
(00)	- AFTERNOON PEAK HOUR (3:00-4:00 PM)
[00]	- EVENING PEAK HOUR (5:00-6:00 PM)
00 (00)	- PEDESTRIAN VOLUME
00 (00)	- BICYCLE VOLUME

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OAK PARK, ILLINOIS

EXISTING PEDESTRIAN AND BICYCLE TRAFFIC VOLUMES

Job No: 18-100 Figure: 5

Traffic Signal Interconnect

The existing traffic signal at the intersection of East Avenue and Madison Street is an actuated traffic signal and is part of a coordinated traffic signal system that is maintained by the Village of Oak Park. It operates on a 90-second cycle length during all three peak hours. The existing traffic signal at the intersection of East Avenue and Washington Boulevard is an actuated traffic signal; however, it is not part of a coordinated traffic signal system. It operates on a 60-second cycle length during all three peak hours. Both traffic signals are maintained by the Village of Oak Park.

Observations of FHS Campus Drop-Off/Pick-Up Traffic

A summary of observations during the peak drop-off/pick-up periods of the FHS Campus are detailed below.

- The FHS drop-off/pick-up system has a one-way counter-clockwise orientation. As noted, a majority of the vehicles access the FHS Campus from the Main Access/Alley from East Avenue and proceed east, then north and west and exit back onto East Avenue.
- Both passenger vehicles and school buses drop-off at the same location, which is front of the main entrance to the school.
- Students are also dropped off from passenger vehicles on East Avenue from both directions, which inhibits through traffic progression, as well as increases unnecessary braking from students/pedestrians crossing East Avenue at an undesignated crosswalk and not looking before crossing the roadway.
- Southbound queues on East Avenue were noted to extend from Madison Street north of the exit access drive on East Avenue.
- Observations noted that southbound vehicles on East Avenue are able to go around vehicles queues on East Avenue waiting to turn into the Main Access drive.
- However, when the northbound queue on East Avenue was observed to extend from Washington Boulevard to Madison Street, the southbound left-turning vehicles at the Main Access are blocked and must wait for “courtesy gaps” to turn into the FHS Campus.
- Buses are parked in a designated parking area after unloading passengers.
- Vehicles in both directions will stop mid-block to let students cross from the public alley. These students are primarily coming from the off-site parking lot that is located at the Oak Park Avenue/Madison Street intersection. However, it is important to note that there is not a designated pedestrian crosswalk at this location. The FHS website advises that students should not use the public alley to walk between the FHS Campus and the off-site parking lot, but should rather walk along Madison Street and cross East Avenue at the traffic signal/designated crosswalk.
- The primary drop-off activity occurs between 7:30 and 8:00 A.M. Once school begins at 8:00 A.M., all traffic operations return to normal along East Avenue and on the adjacent roadways.
- Similarly, the primary pick-up activity occurs between 3:00 and 3:30 P.M.

3. Traffic and Parking Characteristics of the FHS Campus

To evaluate the impact of the FHS Campus traffic at its respective access drives, as well as on the adjacent area roadway system, it was necessary to quantify the number of existing vehicle trips the FHS Campus, including the off-site parking lot, is generating during the respective peak hours to then project future conditions based on the proposed parking garage, as well as regional growth of traffic on the adjacent roadway system.

Fenwick High School (FHS) Campus Traffic

Fenwick High School’s typical school day begins at 8:00 A.M. and is dismissed at 3:10 P.M. Monday through Friday. Students arrive/depart the FHS Campus by school bus, are dropped off/picked up, or park in a designated student space on the FHS Campus, the off-site parking lot located at the Oak Park Avenue/Madison Street intersection, or one of the several on-street designated parking areas on the adjacent roadways near the FHS Campus.

Table 1 tabulates the existing traffic accessing the FHS Campus and off-site parking lot during each of the three established peak hours. Table 1 also includes existing on-street parking that could potentially be removed and relocated to the parking garage.

Table 1
FHS CAMPUS DEVELOPMENT-GENERATED PEAK HOUR TRAFFIC VOLUMES

	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour			Weekday Evening Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
On-Site Traffic	462	256	718	122	234	356	41	79	120
Off-Site Parking Lot (Oak Park Ave/Madison St)	119	2	121	1	51	52	0	4	4
On-Street Parking Relocation to Garage	70	0	70	0	21	21	0	1	1
Total Vehicle Trips:	651	258	909	123	306	429	41	84	125

Proposed FHS Parking Garage

The FHS Campus is proposing an approximate 370-space parking garage to be located on the east side of the campus adjacent to Scoville Avenue. Access to the garage will be from the existing access drives that currently serve the FHS Campus and are described earlier in this report.

Development Traffic Assignment

The proposed parking garage is to relocate lost off-campus parking at Oak Park Avenue/Madison Street and potentially remove students from existing on-street parking. As such, the traffic generated by the off-site parking lot at the Oak Park Avenue/Madison Street intersection and the potential relocation of on-street parking spaces to the new garage was reassigned to the FHS Campus access drives and is shown in **Figure 6**. It is important to note that no reductions in existing traffic were taken for vehicles that were accessing the off-street parking lot or nearby on-street parking that may traverse the roadways adjacent to the FHS Campus. As such, this provides for a conservative study.

Year 2023 Base (with Road Diet) Traffic Conditions

Year 2023 Base traffic conditions includes the existing traffic volumes increased by a regional growth factor as further detailed below. Further, the base condition assumes the implementation of the Madison Street road diet and the redistribution of existing traffic volumes that may be diverted north or south of Madison Street as a result of the road diet.

Regional Growth in Traffic. To account for the increase in existing traffic related to regional growth in the area (i.e. not attributable to any particular planned development) for Year 2023 conditions, the existing peak hour traffic volumes on the adjacent roadways were increased by a factor of one percent. This increase percentage was based on population forecasts provided by the Chicago Metropolitan Agency for Planning (CMAP).

Figure 7 shows the Year 2023 base traffic volumes without the additional traffic accessing the FHS Campus resulting from the proposed parking garage development.

Year 2023 Projected (with Road Diet) Traffic Conditions

Traffic was projected for Year 2023 conditions, which includes the Year 2023 Base traffic conditions (refer to Figure 7), in addition to the reassignment of the FHS Campus traffic in conjunction with the proposed on-campus parking garage, as noted in the section above.

Figure 8 shows the Year 2023 total projected traffic volumes. As shown, this increase in traffic accessing the FHS Campus will have a low impact on traffic operations on the surrounding intersections.



LEGEND
 00 - AM PEAK HOUR (7:00-8:00 AM)
 (00) - AFTERNOON PEAK HOUR (3:00-4:00 PM)
 [00] - EVENING PEAK HOUR (5:00-6:00 PM)

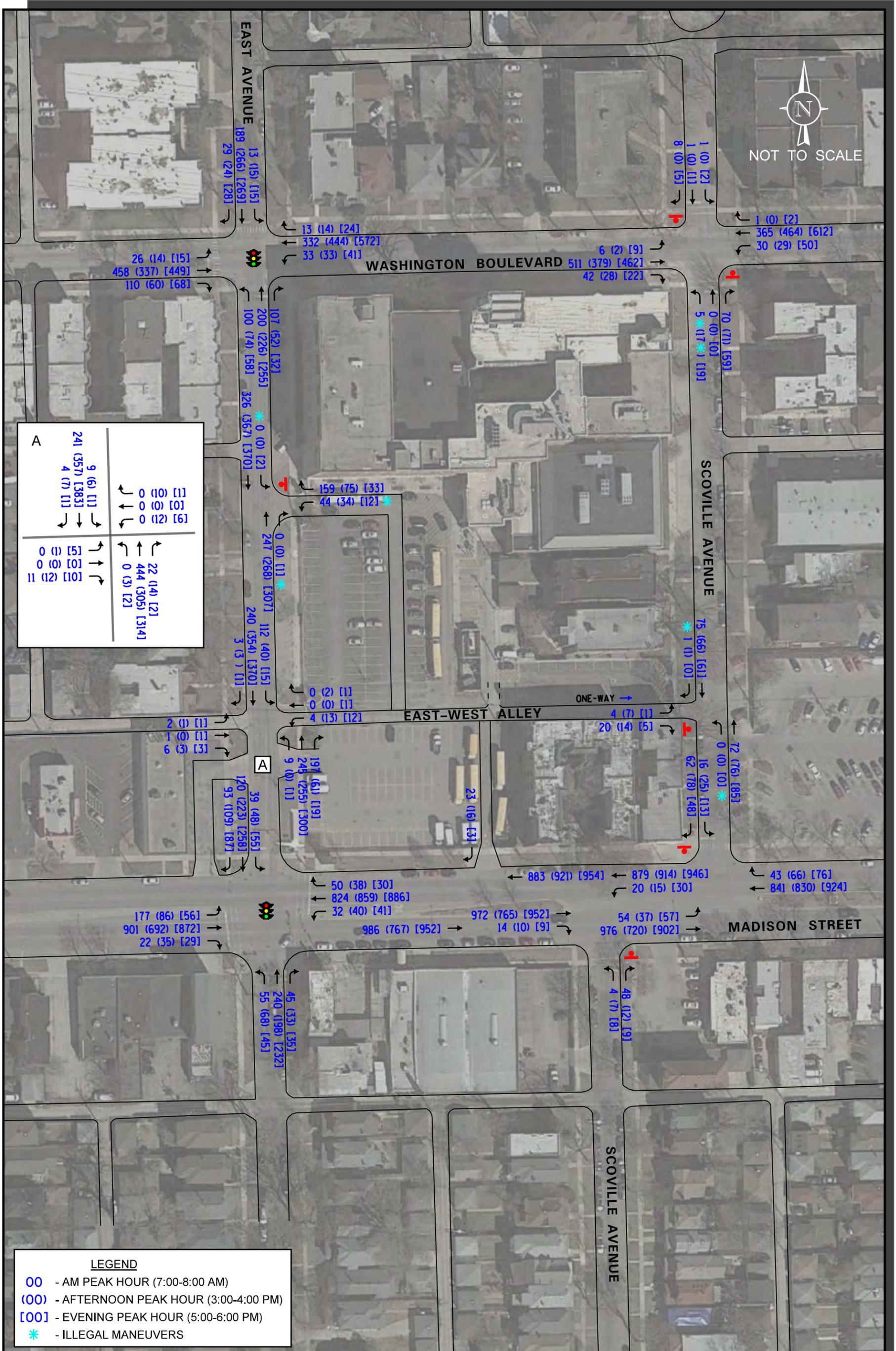
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REASSIGNMENT OF AUXILIARY LOT TRAFFIC VOLUMES
 AND S4 ON-STREET PARKING

KLOA
 Kenig, Lindgren, O'Hara, Aboona, Inc.
 Job No: 18-100 Figure: 6



NOT TO SCALE



A	
9 (6) [11]	0 (0) [0]
241 (357) [383]	0 (0) [0]
4 (7) [11]	0 (0) [0]
0 (0) [0]	22 (14) [21]
0 (0) [0]	444 (305) [314]
0 (0) [0]	0 (3) [2]
11 (12) [10]	

LEGEND	
00	- AM PEAK HOUR (7:00-8:00 AM)
(00)	- AFTERNOON PEAK HOUR (3:00-4:00 PM)
[00]	- EVENING PEAK HOUR (5:00-6:00 PM)
*	- ILLEGAL MANEUVERS

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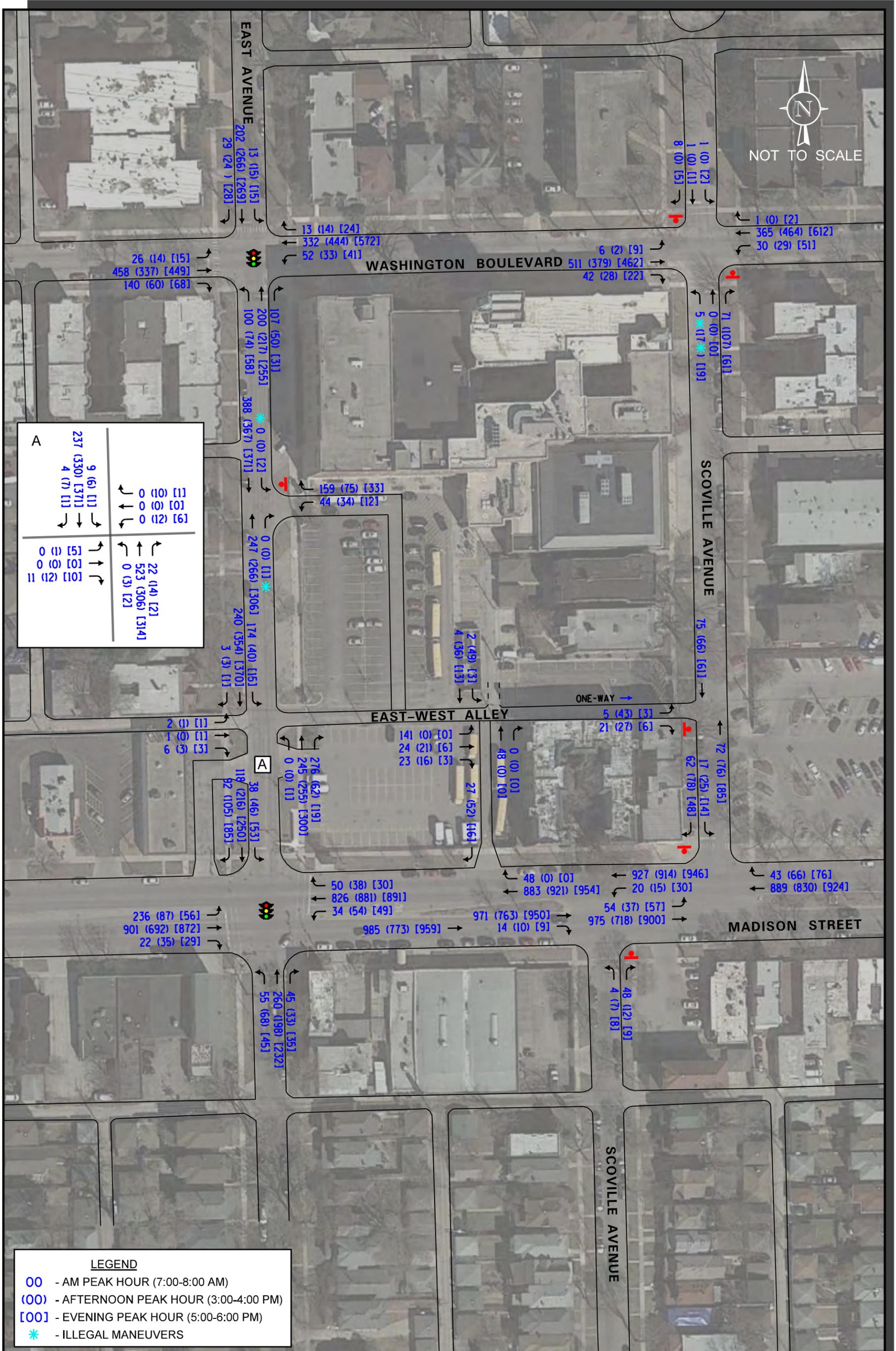
YEAR 2023 BASE (NO-BUILD - ROAD DIET) TRAFFIC VOLUMES



Job No: 18-100 Figure: 7



NOT TO SCALE



A	
9 (6) [11]	0 (0) [0]
237 (330) [371]	0 (0) [0]
4 (7) [11]	0 (0) [0]
22 (14) [2]	523 (306) [314]
0 (0) [0]	0 (3) [2]
0 (0) [0]	0 (0) [0]
0 (0) [0]	11 (12) [10]

LEGEND	
00	- AM PEAK HOUR (7:00-8:00 AM)
(00)	- AFTERNOON PEAK HOUR (3:00-4:00 PM)
[00]	- EVENING PEAK HOUR (5:00-6:00 PM)
*	- ILLEGAL MANEUVERS

FENWICK H.S.
PARKING GARAGE
OAK PARK, ILLINOIS

YEAR 2023 TOTAL PROJECTED TRAFFIC VOLUMES



Job No: 18-100

Figure: 8

FHS Campus Parking

The existing FHS parking is detailed below.

- The Green Lot is primarily for the use of faculty and staff and provides a total of 145 parking spaces. School buses also park in the southerly portion of the lot.
- Approximately 16 parking spaces in the Green Lot, located south of the Main Access/Alley, are lottery spaces for students.
- At the time the traffic counts were conducted, the off-site parking lot (Lot 116) had a total of approximately 107 students that parked in the lot. Based on information provided to KLOA, Inc. by FHS, this lot is no longer being utilized and the students are parking on the street with the S4 parking permit issued by the Village of Oak Park.
- The S4 Permit allowed the students to park their vehicles in Lot 116 (the off-site parking lot located at the Oak Park Avenue/Madison Street intersection – no longer utilized), or parking on the street at designated S4 Permit areas on one of the adjacent roadways near the FHS Campus, that includes Pleasant Street, Randolph Street, Washington Boulevard, and Adams Street.
- According to FHS, there were 265-S4 Permits available on a first-come/first-serve basis during the 2017/2018 school year.
- General on-street parking that does not require an S4 Permit is located on Adams Street, Gunderson Avenue, and Clarence Avenue.

Parking Occupancy Surveys

Parking occupancy surveys were conducted on Tuesday, May 15, 2018 each hour from 6:00 A.M. to 8:00 A.M. at the various FHS parking locations. **Table 2** tabulates the hourly parking occupancy of each location, as well as the inventory/capacity of each respective location. As shown in Table 2, Lot 116 was at 50 percent capacity at the beginning of the school day. Further, on-street S4 Permit areas did not become occupied until just before the school day beginning.

Table 2
 FHS CAMPUS PARKING OCCUPANCY SURVEY

Parking Facility	Capacity	6:00 A.M.	7:00 A.M.	8:00 A.M.
Parking Lots				
On-Site (Green Lot)	145 (13)	19 (12)	49 (9)	143 (12)
Off-Site (Lot 116)	218	0	4	107
On-Street (S4 Permit)				
Pleasant Street	36	0	0	3
Randolph Street	61	0	0	52
Washington Boulevard	28	16	26	28
Adams Street	13	0	1	9
On-Street (Other)				
Adams Street	16	0	0	10
Gunderson Avenue	39	2	7	12
Clarence Avenue	41	7	7	12
(00) – School Buses				

4. Traffic Analysis

Capacity analyses were performed for the key intersections included in the study area to determine the ability of the existing roadway system to accommodate existing and future traffic demands. Analyses were performed for the weekday morning, weekday afternoon, and weekday evening peak hours for the existing (Year 2018), Year 2023 Base (with Road Diet) and Year 2023 Total Projected (Base with FHS traffic) conditions.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM), 2010* and using Synchro/SimTraffic analysis software.

The signalized intersections on East Avenue with Madison Street and Washington Boulevard were analyzed using the programmed cycle lengths, offsets, and phasings to determine the average overall vehicle delay, volume-to-capacity ratios, and levels of service.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

A summary of the traffic analysis results showing the LOS and delay (measured in seconds) for the signalized intersections are presented in **Table 3** and **Table 4**. **Table 5**, **Table 6**, and **Table 7** show the LOS and delay for the unsignalized intersections for existing and future conditions.

A discussion of each of the intersections follows.

Table 3

CAPACITY ANALYSIS RESULTS – EAST AVENUE AND MADISON STREET

Peak Hour	Condition	Operating Conditions by Approach												Overall
		Eastbound			Westbound			Northbound			Southbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning	Existing (Year 2018)	C 27.3	C 25.9	C 25.9	B 12.4	C 34.5	C 34.5	D 38.2	D 38.2	D 38.2	C 23.1	C 23.1	C 23.1	C – 30.1
		C – 26.1			C – 33.7			D – 38.2			C – 23.1			
	Year 2023 Base w/ Road Diet	D 54.6	D 42.6	A 0.0	A 8.8	E 56.3	A 0.6	D 38.0	E 55.1	E 55.1	D 42.3	C 33.2	C 33.2	D – 46.5
		D – 43.7			D – 51.1			D – 52.3			C – 34.6			
	Total Projected Year 2023	F> 75.0	D 44.0	A 0.0	A 9.3	E 58.2	A 0.6	D 37.3	E 59.9	E 59.9	D 45.2	C 32.6	C 32.6	E – 57.3
		E – 66.5			D – 52.7			E – 56.5			C – 34.5			
Weekday Afternoon	Existing (Year 2018)	B 12.8	B 19.2	B 19.2	B 10.7	C 22.7	C 22.7	D 44.6	D 44.6	D 44.6	C 34.8	C 34.8	C 34.8	C – 25.7
		B – 18.5			C – 22.2			D – 44.6			C – 34.8			
	Year 2023 Base w/ Road Diet	B 18.4	C 28.4	A 0.7	A 9.9	D 51.9	A 1.1	C 32.0	C 28.7	C 28.7	C 24.2	C 30.8	C 30.8	D – 35.2
		C – 25.9			D – 47.6			C – 29.5			C – 30.0			
	Total Projected Year 2023	B 18.4	C 30.3	A 0.7	B 10.2	D 54.9	A 1.1	C 32.0	C 29.3	C 29.3	C 24.5	C 30.9	C 30.9	D – 36.9
		C – 27.5			D – 49.9			C – 29.9			C – 30.1			
Weekday Evening	Existing (Year 2018)	B 11.3	C 20.5	C 20.5	B 10.8	C 22.2	C 22.2	C 33.5	C 33.5	C 33.5	D 36.3	D 36.3	D 36.3	C – 24.7
		B – 19.9			C – 21.7			C – 33.5			D – 36.3			
	Year 2023 Base w/ Road Diet	A 8.9	C 25.3	A 0.1	A 7.9	C 31.0	A 0.1	C 34.0	D 35.7	D 35.7	C 30.9	D 39.1	D 39.1	C – 29.2
		C – 23.4			C – 28.8			D – 35.5			D – 38.0			
	Total Projected Year 2023	A 8.8	C 24.9	A 0.1	A 8.1	C 30.8	A 0.1	C 33.6	D 36.2	D 36.2	C 31.0	D 38.6	D 38.6	C – 28.9
		C – 23.0			C – 28.5			D – 35.9			D – 37.5			

Table 4

CAPACITY ANALYSIS RESULTS – EAST AVENUE AND WASHINGTON BOULEVARD

Peak Hour	Condition	Operating Conditions by Approach												Overall
		Eastbound			Westbound			Northbound			Southbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning	Existing (Year 2018)	F > 75.0	F > 75.0	F > 75.0	D 39.9	D 39.9	D 39.9	D 41.3	D 41.3	D 41.3	B 13.0	B 13.0	B 13.0	E – 69.5
		F > 75.0			D – 39.9			D – 41.3			B – 13.0			
	Year 2023 Base w/ Road Diet	F > 75.0	F > 75.0	F > 75.0	E 64.1	E 64.1	E 64.1	D 42.0	D 42.0	D 42.0	B 13.0	B 13.0	B 13.0	F – 94.6
		F > 75.0			E – 64.1			D – 42.0			B – 13.0			
Year 2023 Base w/ Road Diet (improve)	F > 75.0	F > 75.0	A 9.5	F > 75.0	F > 75.0	A 0.2	D 42.0	D 42.0	D 42.0	B 13.0	B 13.0	B 13.0	F – 97.5	
	F > 75.0			F > 75.0			D – 42.0			B – 13.0				
Total Projected Year 2023	F > 75.0	F > 75.0	A 9.7	F > 75.0	F > 75.0	A 0.2	D 42.9	D 42.9	D 42.9	B 13.4	B 13.4	B 13.4	F – 155.9	
	F > 75.0			F > 75.0			D – 42.9			D – 13.4				
Weekday Afternoon	Existing (Year 2018)	C 20.8	C 20.8	C 20.8	C 34.2	C 34.2	C 34.2	C 25.7	C 25.7	C 25.7	B 17.1	B 17.1	B 17.1	C – 25.3
		C – 20.8			C – 34.2			C – 25.7			B – 17.1			
	Year 2023 Base w/ Road Diet	C 22.5	C 22.5	C 22.5	D 39.4	D 39.4	D 39.4	C 28.6	C 28.6	C 28.6	B 17.8	B 17.8	B 17.8	C – 28.3
		C – 22.5			D – 39.4			C – 28.6			B – 17.8			
Year 2023 Base w/ Road Diet (improve)	B 18.9	B 18.9	A 5.4	D 36.6	D 36.6	A 0.1	C 27.9	C 27.9	C 27.9	B 17.7	B 17.7	B 17.7	C – 25.4	
	B – 16.9			D – 35.6			C – 27.9			B – 17.7				
Total Projected Year 2023	B 18.7	B 18.7	A 5.4	D 35.8	D 35.8	A 0.1	C 27.0	C 27.0	C 27.0	B 17.9	B 17.9	B 17.9	C – 25.0	
	B – 16.7			C – 34.8			C – 27.0			B – 17.9				
Weekday Evening	Existing (Year 2018)	C 22.3	C 22.3	C 22.3	D 50.8	D 50.8	D 50.8	C 29.8	C 29.8	C 29.8	C 21.0	C 21.0	C 21.0	C – 33.3
		C – 22.3			D – 50.8			C – 29.8			C – 21.0			
	Year 2023 Base w/ Road Diet	C 26.8	C 26.8	C 26.8	E 72.9	E 72.9	E 72.9	C 30.5	C 30.5	C 30.5	C 21.1	C 21.1	C 21.1	D – 42.6
		C – 26.8			E – 72.9			C – 30.5			C – 21.1			
Year 2023 Base w/ Road Diet (improve)	C 22.0	C 22.0	A 5.5	E 61.0	E 61.0	A 1.7	C 30.5	C 30.5	C 30.5	C 21.1	C 21.1	C 21.1	D – 35.7	
	B – 19.9			E – 58.8			C – 30.5			C – 21.1				
Total Projected Year 2023	C 22.0	C 22.0	A 5.5	E 61.0	E 61.0	A 1.7	C 30.4	C 30.4	C 30.4	C 21.1	C 21.1	C 21.1	D – 35.7	
	B – 19.9			E – 58.8			C – 30.4			C – 21.1				

Table 5
 CAPACITY ANALYSIS RESULTS – UNSIGNALIZED INTERSECTIONS
 EXISTING (YEAR 2018) CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Scoville Avenue (West) and Madison Street						
• Westbound Left-Turn	B	10.9	A	9.9	B	10.6
• Northbound Approach	B	14.9	C	16.0	C	17.5
Scoville Avenue (East) and Madison Street						
• Eastbound Left-Turn	B	10.7	B	10.1	B	11.6
• Southbound Approach	C	18.7	C	16.4	C	17.4
Scoville Avenue and Washington Boulevard						
• Northbound Approach	C	16.4	C	15.8	C	18.0
• Southbound Approach	B	14.7	C	20.7	C	19.9
East Avenue and FHS Main Access/Alley						
• Eastbound Approach	C	18.0	B	13.5	B	13.1
• Westbound Approach	D	32.5	C	20.7	C	17.2
East Avenue and FHS Exit Access						
• Westbound Approach	C	15.6	B	13.5	B	12.1
East Avenue and FHS South Access						
• Eastbound Approach	B	10.0	B	11.7	B	12.9
• Westbound Approach	A	0.0	C	17.5	C	16.3
Scoville Avenue and Public Alley						
• Eastbound Approach	A	9.7	A	9.3	A	8.8
FHS Exit Access and Madison Street						
• Southbound Approach	B	12.4	B	12.0	B	12.5
LOS = Level of Service; Delay is measured in seconds.						

Table 6
 CAPACITY ANALYSIS RESULTS – UNSIGNALIZED INTERSECTIONS
 YEAR 2023 BASE CONDITIONS (ROAD DIET)

Intersection	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Scoville Avenue (West) and Madison Street						
• Westbound Left-Turn	B	10.4	A	9.6	B	10.2
• Northbound Approach	C	21.3	C	18.5	C	20.7
Scoville Avenue (East) and Madison Street						
• Eastbound Left-Turn	B	10.3	A	9.7	B	10.7
• Southbound Approach	C	24.4	C	19.6	C	21.4
Scoville Avenue and Washington Boulevard						
• Northbound Approach	C	17.9	C	17.0	C	20.0
• Southbound Approach	C	16.1	C	20.9	C	20.9
East Avenue and FHS Main Access/Alley						
• Eastbound Approach	C	18.2	B	13.6	B	13.2
• Westbound Approach	D	32.9	C	21.0	C	17.4
East Avenue and FHS Exit Access						
• Westbound Approach	C	15.7	B	13.6	B	12.1
East Avenue and FHS South Access						
• Eastbound Approach	B	10.0	B	11.8	B	13.0
• Westbound Approach	A	0.6	C	17.7	C	16.4
Scoville Avenue and Public Alley						
• Eastbound Approach	A	9.7	A	9.3	A	8.8
FHS RI/RO Access and Madison Street						
• Southbound Approach	C	16.9	C	15.9	C	17.2
LOS = Level of Service; Delay is measured in seconds.						

Table 7
 CAPACITY ANALYSIS RESULTS – UNSIGNALIZED INTERSECTIONS
 PROJECTED (YEAR 2023) CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Scoville Avenue (West) and Madison Street						
• Westbound Left-Turn	B	10.4	B	10.2	A	9.6
• Northbound Approach	C	21.4	C	20.7	C	18.5
Scoville Avenue (East) and Madison Street						
• Eastbound Left-Turn	B	10.5	B	10.7	A	9.7
• Southbound Approach	D	26.5	C	21.7	C	19.6
Scoville Avenue and Washington Boulevard						
• Northbound Approach	C	17.9	C	19.9	C	17.1
• Southbound Approach	C	16.1	C	21.0	C	20.9
East Avenue and FHS Main Access/Alley						
• Eastbound Approach	C	16.3	B	11.8	B	12.5
• Westbound Approach	--	--	--	--	--	--
East Avenue and FHS Exit Access						
• Westbound Approach	C	16.5	B	12.1	B	13.6
East Avenue and FHS South Access						
• Eastbound Approach	B	10.0	B	12.8	B	11.4
• Westbound Approach	--	--	C	16.2	C	16.8
Scoville Avenue and Public Alley						
• Eastbound Approach	A	9.7	A	8.9	B	10.0
FHS RI/RO Access and Madison Street						
• Southbound Approach	C	17.6	C	17.8	C	17.3

LOS = Level of Service; Delay is measured in seconds.

5. Discussion and Recommendations

The following is an evaluation of the analyzed intersections based on the existing and projected traffic volumes and the capacity analyses performed.

East Avenue and Madison Street

Under existing conditions, the intersection operates at acceptable levels of service for all three peak hours. As noted, the road diet implementation includes reducing Madison Street from two through lanes in each direction to one through lane in each direction with a right-turn lane and a left-turn lane on both the eastbound and westbound approaches. Under Year 2023 Base (no-build) conditions, which does not include the FHS garage development, the intersection will continue to operate at an overall acceptable level of service. However, for the weekday morning peak hour, the eastbound left-turn lane and the westbound through movement level of service will go from a LOS C for each respective movement to a LOS D and LOS E, respectively. The weekday afternoon and evening peak hours will continue to operate at overall acceptable levels of service. This is due to the reduction in carrying capacity along Madison Street. However, as stated in the Madison Street Road Diet Traffic Study prepared for the Village of Oak Park by KLOA, Inc. and dated November 21, 2018, it is likely that a portion of the Madison Street traffic will be diverted to other east-west roads with the implementation of the road diet, primarily during the weekday morning and evening peak periods. The Year 2023 Base conditions includes this reassignment of diverted traffic to the north and south of Madison Street.

For Year 2023 projected traffic conditions, which includes the FHS garage development, the capacity analysis shows that for the weekday morning peak hour, the eastbound left-turn movement will operate at a less than desirable level of service and delay. This is primarily due to the additional FHS traffic accessing the campus from the west. In order to ensure accommodation of the increased eastbound left-turn movements, it is recommended to extend the eastbound left-turn storage on Madison Street to Clarence Avenue and then transition into a two-way left-turn lane. With this improvement, the capacity analysis results continue to show a less than desirable LOS and delay; however, the traffic simulation shows that extending the storage allows for additional vehicles to enter the turn lane, thereby not impeding eastbound through traffic flow. Further, the analyses do not take into account “sneakers” or eastbound left-turning vehicles that are able to advance into the intersection and then turn when the light turns yellow, then red. The traffic simulation shows that the vehicles are able to do this and therefore, this turning movement will operate under better conditions than what the capacity analyses reflect.

It is further important to note, however, that the southbound queue on East Avenue extends north of the Main Access/Alley and was observed to do so, particularly during the weekday afternoon peak during FHS dismissal. Access drives serving the FHS Campus, as well as driveways on the west side of East Avenue must wait for “courtesy gaps” to exit onto East Avenue. It is recommended that high-visibility crosswalks should be provided on the east and west legs of the intersection. The existing high-visibility crosswalks on the north and south legs should be restriped since they are weathered and faded.

East Avenue and Washington Boulevard

This signalized intersection operates at an overall acceptable Level of Service (LOS) during the weekday afternoon and evening peak hours but operates at a less than desirable LOS during the weekday morning peak hour. This is primarily due to the high volume of eastbound through traffic on Washington Boulevard on a single lane approach. The LOS will change from a LOS E to LOS F under projected conditions. Further, the queue analysis shows that the northbound queue on East Avenue extends south of the Main Access/Alley during both the morning and afternoon peak hours in conjunction with the FHS Campus bell schedule. Traffic exiting the campus must travel northbound on East Avenue. The traffic signal operates under a two-phase system since all four legs of the intersection provide a single-lane approach.

In order to reduce the delays experienced at this intersection and improve east-west traffic flow, it is recommended to move the “No Parking from here to corner” signs on both the eastbound and westbound approaches an additional 50 feet back to allow vehicles that want to continue traveling through to by-pass a stopped vehicle. By implementing this recommended improvement, the capacity analysis shows that the delay for the eastbound shared through/left-turn movement is significantly reduced during the weekday morning peak hour. Furthermore, the existing parking restriction on the north side Washington Boulevard east of East Avenue should be extended to be from 7:00 to 9:00 A.M. and from 4:00 to 6:00 P.M. It is important to note that the influx of traffic and queuing occurs for a short period of time and dissipates once school begins in the morning and shortly after school is dismissed in the afternoon. The analyses show that the intersection operates at good levels of service during the weekday evening peak hour when FHS is not in session. The existing high-visibility crosswalks on all four legs of the intersection should be restriped since they are weathered and faded.

Scoville Avenue (West and East) and Madison Street

Scoville Avenue has an offset intersection with Madison Street and is under stop sign control. The capacity analyses for projected conditions show that these intersections will continue to operate at acceptable levels of service. The storage provided for the respective eastbound and westbound left-turn lanes on Madison Street will continue to be adequate to accommodate projected left-turning vehicles. The existing high-visibility crosswalks on the north and south legs of the intersections should be restriped since they are weathered and faded. A review of the capacity analyses assuming the planned road diet on Madison Street indicate that outbound movements from both legs of Scoville Avenue will continue to operate at acceptable levels of service. No roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Scoville Avenue and Washington Boulevard

Scoville Avenue intersects Washington Boulevard under stop sign control. A single lane allowing left-, through-, and right-turning movements are provided on all four approaches. The capacity analyses show that this intersection will continue to operate at good levels of service under projected conditions. High-visibility crosswalks should be provided on the north and south legs of the intersection. No further roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

East Avenue and Main FHS Access/Alley

The east-west alley, along with the adjacent FHS driveway, serves as the main access to the FHS Campus. A queue analysis on East Avenue shows that traffic extends past this intersection in both directions during both arrival and dismissal periods. Southbound vehicles desiring to turn left onto the FHS Main Access, as well as vehicles desiring to exit the access onto East Avenue must wait for “courtesy gaps” in traffic to complete these turning movements. Further, existing pedestrian counts and field observations note that there is a high volume of pedestrians (students) crossing East Avenue at this intersection, which causes vehicles to brake and wait while they cross. This further inhibits traffic operations at this intersection. In conjunction with the proposed garage, it is recommended that the FHS Access be limited to one-way eastbound/inbound only during peak arrival and dismissal times. This will reduce vehicle turning movement conflicts at this intersection. It is important to note, however, that it is anticipated that pedestrians crossing East Avenue at this intersection will be significantly reduced in conjunction with the proposed on-campus parking garage since a majority, if not all, of these crossing pedestrians are students walking to/from Lot 116. It is further recommended that a traffic monitor be provided to deter vehicles from dropping-off/picking up students on East Avenue, which further increases congestion along East Avenue.

East Avenue and Exit Access

The Exit Access is signed to restrict exiting turning movements to right-turns only. As noted, the existing traffic volumes show that there is a high volume of vehicles making illegal left-turning movements. It is recommended that parking cones be placed on the driveway to further channelized outbound vehicles to right-turns out only. The cones can then be easily removed by a traffic monitor when the buses exit the campus. Eliminating the illegal outbound left-turning vehicles will further reduce turning movement conflicts along East Avenue.

FHS South Access and East Avenue

The FHS South Access aligns with the access driveway serving the dry cleaner on the west side of East Avenue. No further roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Scoville Avenue and Alley

The alley has a one-way eastbound orientation between the school buildings and Scoville Avenue, providing a single lane approach under stop sign control. The intersection will continue to operate at a good LOS under projected conditions. It is recommended that “Do Not Enter” signage be posted at the Scoville Avenue to deter opposing vehicles from entering the one-way eastbound - oriented alley from Scoville Avenue. The public alley should remain under stop control at its intersection with Scoville Avenue.

FHS RI/RO Access and Madison Street

This access drive currently is restricted to right-turn exiting movements only under stop sign control. Under future conditions, the access drive will be modified to allow for inbound right-turning movement. The restriction of the movements to right-in/right-out only will be enforced via a raised triangular median and signage indicating no left-turns. Outbound movements will continue to be under stop sign control. Based on the results of the capacity analyses, the intersection is operating at an acceptable LOS and will continue to do so under future conditions. Further, a review of the capacity analyses assuming the planned road diet on Madison Street indicate that the outbound movement will continue to operate at acceptable levels of service. No additional roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Internal Circulation

The proposed parking garage will be located on the east side of the campus, adjacent to Scoville Avenue. Access to the parking garage is proposed from the existing access drives serving the FHS Campus; no new access drives are proposed on the adjacent roadway system. The following recommendations were developed to improve existing operations in conjunction with the proposed garage traffic operations.

- The Main Access should be restricted to one-way eastbound/inbound during peak arrival/dismissal times. This will remove outbound turning vehicle movements and provide direct access to the parking garage.
- Vehicles exiting the garage and entering the garage from the north-south drive (RI/RO access drive off Madison) should be under stop sign control.
- Once the school buses have finished unloading their passengers, they should immediately exit the drop off area to reduce the vehicle congestion during peak drop-off periods.
- Traffic monitors should be posted on East Avenue to deter vehicles from dropping off/picking up students directly on East Avenue, as well as redirecting pedestrians crossing East Avenue to use the established crosswalk at the Madison Street signalized intersection.
- Traffic monitors should also be posted at the main drop-off/pick-up area at the main entrance to the school to ensure traffic progresses smoothly.

A figure depicting the proposed traffic flow and traffic control is included in the Appendix.

Table 8 shows a summary of all the recommended improvements.

Table 8
PROPOSED ROADWAY NETWORK IMPROVEMENTS

Street/Intersection	Improvement/Modification/Design
East Avenue and Madison Street	<ul style="list-style-type: none"> • Extend the eastbound left-turn lane up to Clarence Avenue transitioning into a two-way left-turn lane • Restripe the existing high-visibility crosswalks on the north and south legs
East Avenue and Washington Boulevard	<ul style="list-style-type: none"> • Move the “No Parking from here to corner” sign on both approaches of Washington Boulevard an additional 50 feet further back thereby creating a right-turn “pocket” • Extend the parking restriction on the north side of Washington Boulevard east of East Avenue to be from 7:00 to 9:00 A.M. and from 4:00 to 6:00 P.M. • Restripe the existing high-visibility crosswalks of all four legs
Scoville Avenue (West and East) with Madison Street	<ul style="list-style-type: none"> • Restripe the existing high-visibility crosswalks on the north and south legs
Scoville Avenue and Washington Boulevard	<ul style="list-style-type: none"> • Provide high-visibility crosswalks on the north and south legs
East Avenue and Main FHS Access/Alley	<ul style="list-style-type: none"> • Limit the FHS access to one-way eastbound during the peak arrival and dismissal times • Provide a traffic monitor at this intersection to deter vehicles from dropping-off/picking-up students on East Avenue
East Avenue and Exit Drive	<ul style="list-style-type: none"> • Provide parking cones on the driveway to further channelize outbound vehicles to right-turns only
FHS RI/RO Access and Madison Street	<ul style="list-style-type: none"> • Provide a raised triangular (“porkchop”) island to physically restrict movements to right-in/right-out • Provide a “No Left-Turn” sign on the raised island

6. Conclusion

Kenig, Lindgren, O’Hara, Aboona, Inc. (KLOA, Inc.) conducted a traffic impact study for the Fenwick High School Campus located at 505 Washington Boulevard in Oak Park, Illinois. The FHS Campus proposes an approximate 350-space parking garage to be located on the eastern portion of the campus. The parking garage is to provide on-site parking for students and decrease the need for the off-site parking lot, as well as the designated on-street parking areas. Vehicle access to the proposed parking garage will be provided via the existing access drives off East Avenue, Madison Street, and from an east-west public alley that extends between East Avenue and Scoville Avenue.

The following summarizes the findings and recommendations of the study.

- The proposed parking garage provides the following benefits with respect to traffic conditions in the area.
 - Reduces and/or removes S4 permit on-street parking on the surrounding roadways.
 - Reduces unnecessary vehicle circulation on the surrounding neighborhood roadways or students searching for an on-street parking space.
 - Consolidates all FHS traffic to the campus. No additional traffic is anticipated to be generated in conjunction with the proposed garage development. The proposed garage involves a reassignment of existing traffic already in the area now going directly to the campus.
- The projected traffic volumes for Year 2023 conditions and corresponding traffic capacity analyses includes the implemented road diet conditions on Madison Street and the resulting diverted traffic to the north and south of Madison Street, regional growth in traffic in the area, and the reassignment of existing traffic accessing the off-site parking lot (Lot 116) and on-street parking spaces to the proposed on-site parking garage.
- The “No Parking from here to corner” sign on both approaches of Washington Boulevard at its intersection with East Avenue should be moved further back, thereby creating a right-turn “pocket” for vehicles to bypass those vehicles desiring to turn left onto East Avenue. Further, the parking restriction on the north side of Washington Boulevard east of East Avenue should be extended from 7:00 to 9:00 A.M. and from 4:00 to 6:00 P.M.
- The eastbound left-turn lane on Madison Street at its intersection with East Avenue should be extended to Clarence Avenue transitioning into a two-way left-turn lane.
- Under existing conditions, East Avenue experiences traffic congestion during the peak arrival and dismissal times in conjunction with the FHS Campus. The combination of through traffic, vehicles dropping off/picking up students on East Avenue, pedestrians crossing East Avenue at non-designated crosswalks and vehicles entering and exiting the FHS Campus all contribute to delays and queuing on East Avenue between Washington Boulevard and Madison Street.

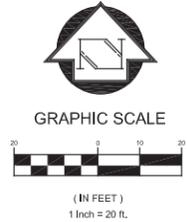
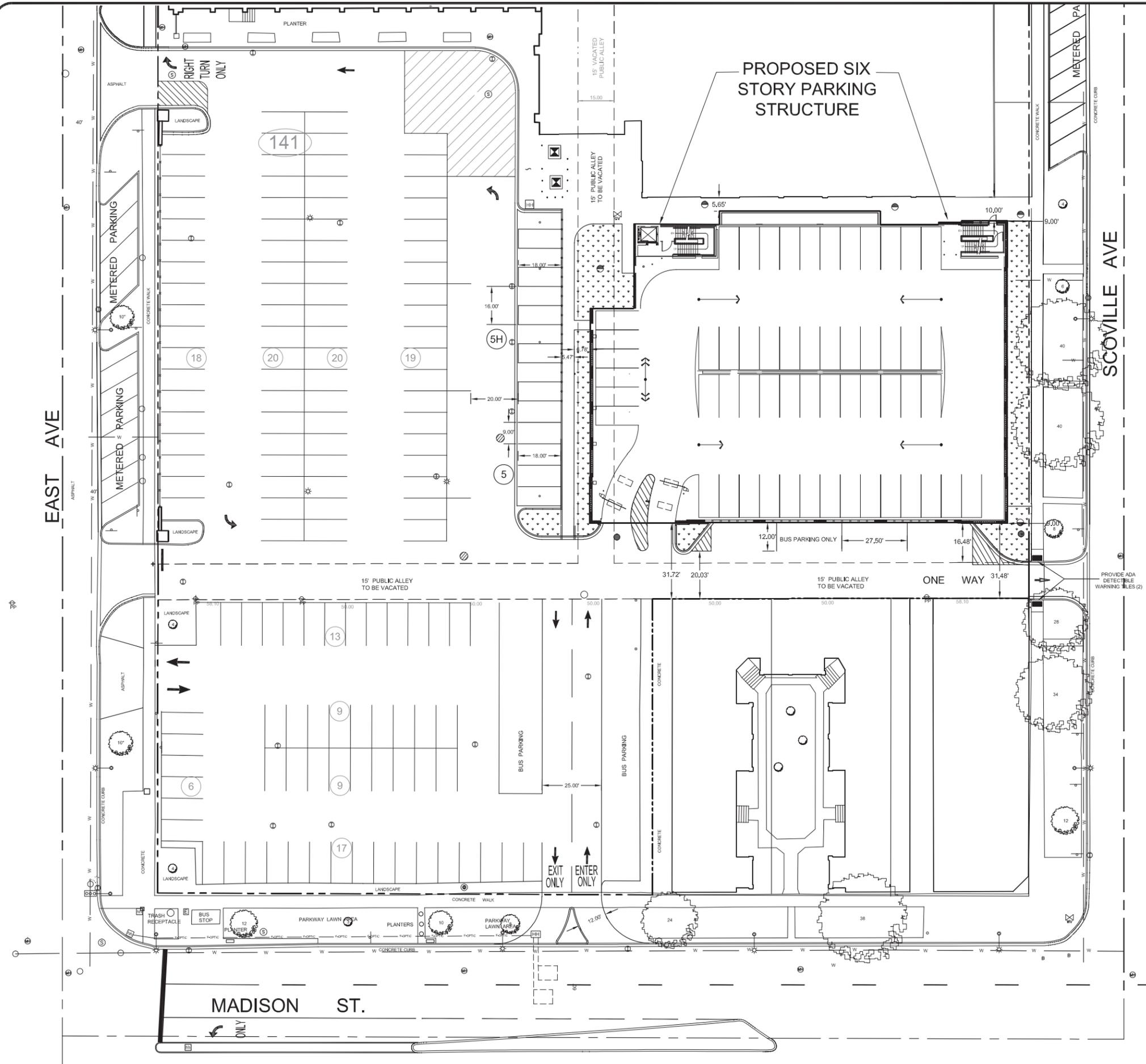
- Pedestrians crossing East Avenue at the public alley will be significantly reduced with the inclusion of the proposed parking garage since a majority of these pedestrians are students travelling between the FHS Campus and Lot 116, the off-site parking lot at the Oak Park Avenue/Madison Street intersection. Eliminating these pedestrians on East Avenue will improve traffic operations along East Avenue since vehicles are braking and waiting for these pedestrians to cross East Avenue at an undesignated crosswalk.
- The Main FHS Access off East Avenue should be restricted to one-way eastbound/inbound during peak arrival/dismissal times. This will remove outbound turning vehicle movements and provide direct access to the parking garage.
- At the Exit Access off East Avenue, it is recommended that parking cones be placed on the driveway to further channelize outbound vehicles to right-turns only. The cones can then be easily removed by a traffic monitor when the buses exit the campus. Eliminating the illegal outbound left-turning vehicles will further reduce turning movement conflicts along East Avenue.
- Vehicles exiting the garage should be under stop sign control.
- Once the school buses have finished unloading their passengers, they should immediately exit the drop-off lane to reduce the vehicle congestion during peak drop-off periods.
- Traffic monitors should be posted on East Avenue to deter vehicles from dropping-off/picking up students directly on East Avenue, as well as redirecting pedestrians crossing East Avenue to use the established crosswalk at the Madison Street signalized intersection.
- Traffic monitors should also be posted at the main drop-off/pick-up area at the main entrance to the school to ensure traffic progresses smoothly.
- High-visibility crosswalks should either be implemented or restriped on Madison Street at its intersections with East Avenue and Scoville Avenue, and on Washington Boulevard at its intersections with East Avenue and Scoville Avenue.

Appendix

Site Plan
Traffic Count Summary Sheets
Level of Service Criteria
Capacity Analysis – Existing Conditions
Capacity Analysis – Year 2023 Base (Road Diet)
Conditions
Capacity Analysis – Year 2023 Total Projected
Conditions
Proposed Internal Traffic Flow and Traffic Control

Site Plan

M:\2018\18055\Fenwick High School\Drawings\18-055 ENG GEOMETRIC - Planes: 11/17/2018 4:11 PM By: Kobaevsk, COPYRIGHT 2018 - JOSEPH A. SCHUDT & ASSOCIATES



(IN FEET)
1 Inch = 20 Ft.

PROPOSED SIX
STORY PARKING
STRUCTURE

SCOVILLE AVE

EAST AVE

MADISON ST.

Joseph A. Schudt & Associates
 9455 ENTERPRISE DRIVE MOKENA, IL 60448
 PHONE: 708-720-1000 www.jaseng.com FAX: 708-720-1065
 (184-001172)

CIVIL ENGINEERING LAND SURVEYING ENVIRONMENTAL LAND PLANNING GPS SERVICES

REVISIONS: MADISON ST. EXIT
 1-10-19

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 JOSEPH A. SCHUDT & ASSOCIATES.

PARKING STRUCTURE
 FENWICK HIGH SCHOOL
 505 WASHINGTON BLVD, OAK PARK, IL
 GEOMETRIC PLAN

Date: 12-20-18
 Scale: 1"=20'
 File Name: 18-055
 Drawn: TMF
 Checked: DWO
 Sheet:
 4 OF 13
 Project No.:
 18-055

FOR PERMIT

NOT FOR CONSTRUCTION

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Madison Street
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Madison Street Eastbound					Madison Street Westbound					East Avenue Northbound					East Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	27	239	1	1	267	0	4	159	12	2	175	0	4	42	10	0	56	0	8	23	15	5	46	544
7:15 AM	0	46	217	7	0	270	0	10	214	8	16	232	0	8	53	8	6	69	0	7	26	24	5	57	628
7:30 AM	0	49	209	8	12	266	0	3	204	19	11	226	0	25	92	10	3	127	0	5	27	21	22	53	672
7:45 AM	0	53	227	6	4	266	0	15	239	10	19	264	0	17	82	17	4	116	1	19	43	32	27	95	761
Hourly Total	0	175	892	22	17	1089	0	32	816	49	48	897	0	54	269	45	13	368	1	39	119	92	59	251	2605
8:00 AM	0	7	178	4	0	189	0	5	217	10	1	232	0	19	42	9	0	70	0	10	42	14	2	66	557
8:15 AM	0	9	191	11	1	211	0	3	197	5	1	205	0	15	47	14	2	76	0	10	22	8	2	40	532
8:30 AM	0	10	165	9	0	184	0	4	190	5	0	199	0	17	64	15	4	96	0	9	21	5	7	35	514
8:45 AM	1	4	142	5	3	152	0	6	180	9	0	195	0	13	44	20	5	77	0	7	31	8	3	46	470
Hourly Total	1	30	676	29	4	736	0	18	784	29	2	831	0	64	197	58	11	319	0	36	116	35	14	187	2073
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	12	184	9	2	205	0	11	228	11	4	250	0	9	38	8	5	55	0	4	33	24	3	61	571
2:45 PM	0	12	161	10	2	183	1	6	217	7	3	231	0	5	20	2	2	27	0	11	27	14	1	52	483
Hourly Total	0	24	345	19	4	388	1	17	445	18	7	481	0	14	58	10	7	82	0	15	60	38	4	113	1064
3:00 PM	0	27	151	8	4	186	0	8	221	10	8	239	0	18	42	5	6	65	0	7	34	25	2	66	556
3:15 PM	0	21	186	6	9	213	0	11	200	6	21	219	0	23	54	18	11	95	0	17	74	31	6	122	647
3:30 PM	0	22	180	12	0	214	0	10	227	13	3	250	0	17	52	5	5	74	0	12	60	26	7	98	636
3:45 PM	0	15	170	9	5	194	1	12	205	9	4	227	0	9	50	5	16	64	0	12	64	26	8	102	587
Hourly Total	0	85	667	35	18	807	1	41	853	38	36	933	0	67	198	33	38	298	0	48	232	108	23	388	2426
4:00 PM	0	13	190	11	1	214	0	14	240	8	0	262	0	15	24	11	2	50	0	19	61	28	11	108	634
4:15 PM	0	12	185	13	7	210	0	7	226	7	2	240	0	12	40	5	2	57	0	9	57	12	2	78	585
4:30 PM	0	15	227	11	3	253	0	10	235	13	3	258	0	11	41	2	2	54	0	10	65	21	3	96	661
4:45 PM	1	10	200	9	4	220	0	6	199	5	2	210	0	19	59	5	2	83	0	4	55	13	4	72	585
Hourly Total	1	50	802	44	15	897	0	37	900	33	7	970	0	57	164	23	8	244	0	42	238	74	20	354	2465
5:00 PM	0	13	225	6	4	244	0	14	218	11	5	243	0	14	51	4	4	69	0	10	65	26	1	101	657
5:15 PM	0	16	204	10	3	230	0	7	205	4	9	216	0	16	71	10	4	97	0	13	77	21	6	111	654
5:30 PM	0	15	220	5	6	240	0	7	222	9	5	238	0	9	56	11	10	76	0	14	61	22	2	97	651
5:45 PM	0	11	214	8	0	233	0	13	234	6	2	253	0	6	55	10	2	71	0	5	59	17	1	93	650
Hourly Total	0	55	863	29	13	947	0	41	879	30	21	950	0	45	233	35	20	313	0	54	262	86	10	402	2612
Grand Total	2	419	4265	178	71	4864	2	186	4677	197	121	5062	0	301	1119	204	97	1624	1	234	1027	433	130	1695	13245
Approach %	0.0	8.6	87.7	3.7	-	36.7	0.0	3.7	92.4	3.9	-	-	0.0	18.5	68.9	12.6	-	-	0.1	13.8	60.6	25.5	-	-	-
Total %	0.0	3.2	32.2	1.3	-	36.7	0.0	1.4	35.3	1.5	-	38.2	0.0	2.3	8.4	1.5	-	12.3	0.0	1.8	7.8	3.3	-	12.8	-
Lights	2	406	4161	177	-	4746	2	182	4548	190	-	4922	0	294	1065	202	-	1561	1	229	988	426	-	1644	12873
% Lights	100.0	96.9	97.6	99.4	-	97.6	100.0	97.8	97.2	96.4	-	97.2	-	97.7	95.2	99.0	-	96.1	100.0	97.9	96.2	98.4	-	97.0	97.2
Buses	0	13	33	0	-	46	0	1	46	4	-	51	0	2	7	0	-	9	0	0	9	5	-	14	120
% Buses	0.0	3.1	0.8	0.0	-	0.9	0.0	0.5	1.0	2.0	-	1.0	-	0.7	0.6	0.0	-	0.6	0.0	0.0	0.9	1.2	-	0.8	0.9
Single-Unit Trucks	0	0	54	0	-	54	0	2	64	2	-	68	0	5	6	2	-	13	0	4	1	2	-	7	142

% Single-Unit Trucks	0.0	0.0	1.3	0.0	1.1	1.4	1.0	-	1.3	-	1.7	0.5	1.0	-	0.8	0.0	1.7	0.1	0.5	-	0.4	1.1
Articulated Trucks	0	0	13	0	0	12	1	-	13	-	0	1	0	-	1	0	1	1	0	-	2	29
% Articulated Trucks	0.0	0.0	0.3	0.0	0.0	0.3	0.5	-	0.3	-	0.0	0.1	0.0	-	0.1	0.0	0.4	0.1	0.0	-	0.1	0.2
Bicycles on Road	0	0	4	1	1	7	0	-	8	-	0	0	40	0	40	0	0	28	0	-	28	81
% Bicycles on Road	0.0	0.0	0.1	0.6	0.1	0.1	0.0	-	0.2	-	0.0	3.6	0.0	-	2.5	0.0	0.0	2.7	0.0	-	1.7	0.6
Pedestrians	-	-	-	-	71	-	-	-	121	-	-	-	-	-	97	-	-	-	-	-	130	-
% Pedestrians	-	-	-	-	100.0	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Madison Street
Site Code:
Start Date: 05/15/2018
Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Madison Street Eastbound					Madison Street Westbound					East Avenue Northbound					East Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	27	239	1	1	267	0	4	159	12	2	175	0	4	42	10	0	56	0	8	23	15	5	46	544
7:15 AM	0	46	217	7	0	270	0	10	214	8	16	232	0	8	53	8	6	69	0	7	26	24	5	57	628
7:30 AM	0	49	209	8	12	266	0	3	204	19	11	226	0	25	92	10	3	127	0	5	27	21	22	53	672
7:45 AM	0	53	227	6	4	286	0	15	239	10	19	264	0	17	82	17	4	116	1	19	43	32	27	95	761
Total	0	175	892	22	17	1089	0	32	816	49	48	897	0	54	269	45	13	368	1	39	119	92	59	251	2605
Approach %	0.0	16.1	81.9	2.0	-	-	0.0	3.6	91.0	5.5	-	-	0.0	14.7	73.1	12.2	-	-	0.4	15.5	47.4	36.7	-	-	-
Total %	0.0	6.7	34.2	0.8	-	41.8	0.0	1.2	31.3	1.9	-	34.4	0.0	2.1	10.3	1.7	-	14.1	0.0	1.5	4.6	3.5	-	9.6	-
PHF	0.000	0.825	0.933	0.688	-	0.952	0.000	0.533	0.854	0.645	-	0.849	0.000	0.540	0.731	0.662	-	0.724	0.250	0.513	0.692	0.719	-	0.661	0.856
Lights	0	170	871	22	-	1063	0	32	797	45	-	874	0	52	236	44	-	332	1	39	119	92	-	251	2520
% Lights	-	97.1	97.6	100.0	-	97.6	-	100.0	97.7	91.8	-	97.4	-	96.3	87.7	97.8	-	90.2	100.0	100.0	100.0	100.0	-	100.0	96.7
Buses	0	5	10	0	-	15	0	0	8	3	-	11	0	1	1	0	-	2	0	0	0	0	-	0	28
% Buses	-	2.9	1.1	0.0	-	1.4	-	0.0	1.0	6.1	-	1.2	-	1.9	0.4	0.0	-	0.5	0.0	0.0	0.0	0.0	-	0.0	1.1
Single-Unit Trucks	0	0	8	0	-	8	0	0	9	1	-	10	0	1	1	1	-	3	0	0	0	0	-	0	21
% Single-Unit Trucks	-	0.0	0.9	0.0	-	0.7	-	0.0	1.1	2.0	-	1.1	-	1.9	0.4	2.2	-	0.8	0.0	0.0	0.0	0.0	-	0.0	0.8
Articulated Trucks	0	0	3	0	-	3	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	5
% Articulated Trucks	-	0.0	0.3	0.0	-	0.3	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	31	0	-	31	0	0	0	0	-	0	31
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	11.5	0.0	-	8.4	0.0	0.0	0.0	0.0	-	0.0	1.2
Pedestrians	-	-	-	-	17	-	-	-	-	-	48	-	-	-	-	-	13	-	-	-	-	-	59	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Madison Street
Site Code:
Start Date: 05/15/2018
Page No.: 4

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Madison Street Eastbound					Madison Street Westbound					East Avenue Northbound					East Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
3:00 PM	0	27	151	8	4	186	0	8	221	10	8	239	0	18	42	5	6	65	0	7	34	25	2	66	556
3:15 PM	0	21	186	6	9	213	0	11	200	6	21	217	0	23	54	18	11	95	0	17	74	31	6	122	647
3:30 PM	0	22	180	12	0	214	0	10	227	13	3	250	0	17	52	5	5	74	0	12	60	26	7	98	636
3:45 PM	0	15	170	9	5	194	1	12	205	9	4	227	0	9	50	5	16	64	0	12	64	26	8	102	587
Total	0	85	687	35	18	807	1	41	853	38	36	933	0	67	198	33	38	298	0	48	232	108	23	388	2426
Approach %	0.0	10.5	85.1	4.3	-	-	0.1	4.4	91.4	4.1	-	-	0.0	22.5	66.4	11.1	-	-	0.0	12.4	59.8	27.8	-	-	-
Total %	0.0	3.5	28.3	1.4	-	33.3	0.0	1.7	35.2	1.6	-	38.5	0.0	2.8	8.2	1.4	-	12.3	0.0	2.0	9.6	4.5	-	16.0	-
PHF	0.000	0.787	0.923	0.729	-	0.943	0.250	0.854	0.939	0.731	-	0.933	0.000	0.728	0.917	0.458	-	0.784	0.000	0.706	0.784	0.871	-	0.795	0.937
Lights	0	81	668	35	-	784	1	38	832	38	-	909	0	66	193	32	-	291	0	48	218	104	-	370	2354
% Lights	-	95.3	97.2	100.0	-	97.1	100.0	92.7	97.5	100.0	-	97.4	-	98.5	97.5	97.0	-	97.7	-	100.0	94.0	96.3	-	95.4	97.0
Buses	0	4	8	0	-	12	0	1	3	0	-	4	0	1	2	0	-	3	0	0	3	3	-	6	25
% Buses	-	4.7	1.2	0.0	-	1.5	0.0	2.4	0.4	0.0	-	0.4	-	1.5	1.0	0.0	-	1.0	-	0.0	1.3	2.8	-	1.5	1.0
Single-Unit Trucks	0	0	10	0	-	10	0	1	14	0	-	15	0	0	1	1	-	2	0	0	0	1	-	1	28
% Single-Unit Trucks	-	0.0	1.5	0.0	-	1.2	0.0	2.4	1.6	0.0	-	1.6	-	0.0	0.5	3.0	-	0.7	-	0.0	0.0	0.9	-	0.3	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	1	0	-	1	0	1	3	0	-	4	0	0	2	0	-	2	0	0	11	0	-	11	18
% Bicycles on Road	-	0.0	0.1	0.0	-	0.1	0.0	2.4	0.4	0.0	-	0.4	-	0.0	1.0	0.0	-	0.7	-	0.0	4.7	0.0	-	2.8	0.7
Pedestrians	-	-	-	-	18	-	-	-	-	-	36	-	-	-	-	-	38	-	-	-	-	-	23	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Madison Street
Site Code:
Start Date: 05/15/2018
Page No.: 5

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Madison Street Eastbound					Madison Street Westbound					East Avenue Northbound					East Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
5:00 PM	0	13	225	6	4	244	0	14	218	11	5	243	0	14	51	4	4	69	0	10	65	26	1	101	657
5:15 PM	0	16	204	10	3	230	0	7	205	4	9	216	0	16	71	10	4	97	0	13	77	21	6	111	654
5:30 PM	0	15	220	5	6	240	0	9	222	9	5	238	0	9	56	11	10	76	0	14	61	22	2	97	651
5:45 PM	0	11	214	8	0	233	0	13	234	6	2	253	0	6	55	10	2	71	0	17	59	17	1	93	650
Total	0	55	863	29	13	947	0	41	879	30	21	950	0	45	233	35	20	313	0	54	262	86	10	402	2612
Approach %	0.0	5.8	91.1	3.1	-	-	0.0	4.3	92.5	3.2	-	-	0.0	14.4	74.4	11.2	-	-	0.0	13.4	65.2	21.4	-	-	-
Total %	0.0	2.1	33.0	1.1	-	36.3	0.0	1.6	33.7	1.1	-	36.4	0.0	1.7	8.9	1.3	-	12.0	0.0	2.1	10.0	3.3	-	15.4	-
PHF	0.000	0.859	0.959	0.725	-	0.970	0.000	0.732	0.939	0.682	-	0.939	0.000	0.703	0.820	0.795	-	0.807	0.000	0.794	0.851	0.827	-	0.905	0.994
Lights	0	54	852	29	-	935	0	41	856	29	-	926	0	45	228	35	-	308	0	53	252	85	-	390	2559
% Lights	-	98.2	98.7	100.0	-	98.7	-	100.0	97.4	96.7	-	97.5	-	100.0	97.9	100.0	-	98.4	-	98.1	96.2	98.8	-	97.0	98.0
Buses	0	1	2	0	-	3	0	0	8	1	-	9	0	0	1	0	-	1	0	0	1	0	-	1	14
% Buses	-	1.8	0.2	0.0	-	0.3	-	0.0	0.9	3.3	-	0.9	-	0.0	0.4	0.0	-	0.3	-	0.0	0.4	0.0	-	0.2	0.5
Single-Unit Trucks	0	0	8	0	-	8	0	0	11	0	-	11	0	0	1	0	-	1	0	1	1	1	-	3	23
% Single-Unit Trucks	-	0.0	0.9	0.0	-	0.8	-	0.0	1.3	0.0	-	1.2	-	0.0	0.4	0.0	-	0.3	-	1.9	0.4	1.2	-	0.7	0.9
Articulated Trucks	0	0	1	0	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	1	0	-	1	4
% Articulated Trucks	-	0.0	0.1	0.0	-	0.1	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.4	0.0	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	2	0	-	2	0	0	3	0	-	3	0	0	7	0	-	7	12
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	0.0	1.3	0.0	-	1.0	-	0.0	2.7	0.0	-	1.7	0.5
Pedestrians	-	-	-	-	13	-	-	-	-	-	21	-	-	-	-	-	-	20	-	-	-	-	10	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Kenig, Lindgren, O'Hara, Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Washington
Boulevard
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Washington Boulevard Eastbound					Washington Boulevard Westbound					East Avenue Northbound					East Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	7	123	10	0	140	0	6	59	0	9	65	0	4	37	17	2	58	0	2	34	4	3	40	303
7:15 AM	0	9	107	32	4	148	0	5	65	2	29	72	0	21	55	27	4	103	0	3	52	6	3	61	384
7:30 AM	0	4	84	26	13	114	0	11	68	5	27	84	0	29	70	27	4	126	0	2	38	7	4	47	371
7:45 AM	0	6	96	41	4	143	0	11	97	6	27	114	0	46	64	35	8	145	0	6	64	12	3	82	484
Hourly Total	0	26	410	109	21	545	0	33	289	13	92	335	0	100	226	106	18	432	0	13	188	29	13	230	1542
8:00 AM	0	1	86	5	2	92	0	5	101	0	0	106	0	5	45	7	5	57	0	4	52	6	0	62	317
8:15 AM	0	0	73	8	1	81	0	5	77	2	7	84	0	4	47	10	5	61	0	7	33	3	3	43	269
8:30 AM	0	0	80	6	5	86	0	8	73	2	2	83	1	3	56	7	6	67	0	1	24	6	3	31	267
8:45 AM	0	3	79	7	0	89	0	5	69	1	0	75	0	7	42	7	1	56	0	9	27	4	1	40	260
Hourly Total	0	4	318	26	8	348	0	23	320	5	9	348	1	19	190	31	17	241	0	21	136	19	7	176	1113
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	2	64	15	8	81	0	8	78	3	7	89	0	11	43	11	2	65	0	1	37	2	6	40	275
2:45 PM	0	10	52	12	4	74	0	8	84	0	6	92	0	6	28	6	7	40	0	2	40	2	2	44	250
Hourly Total	0	12	116	27	12	155	0	16	162	3	13	181	0	17	71	17	9	105	0	3	77	4	8	84	525
3:00 PM	0	1	81	19	7	101	0	8	91	2	33	101	0	13	40	13	13	66	0	4	50	3	2	57	325
3:15 PM	0	3	76	12	11	91	0	7	90	2	36	99	0	28	59	15	6	102	0	7	98	12	13	117	409
3:30 PM	0	4	71	12	4	87	0	9	93	5	30	107	0	15	62	13	6	90	0	3	58	4	7	65	349
3:45 PM	0	6	72	16	5	94	0	9	124	5	8	138	0	17	65	10	19	92	0	1	68	6	5	75	399
Hourly Total	0	14	300	59	27	373	0	33	398	14	107	445	0	73	226	51	44	350	0	15	274	25	27	314	1482
4:00 PM	0	2	99	20	1	121	0	13	124	1	8	138	0	10	36	12	1	58	0	2	62	8	5	72	389
4:15 PM	0	5	90	13	6	108	0	10	103	4	3	117	0	5	50	3	1	58	0	4	54	1	0	59	342
4:30 PM	0	6	97	7	7	110	0	14	125	3	5	142	0	13	57	7	4	77	0	2	64	6	3	72	401
4:45 PM	0	5	107	10	4	122	0	9	128	1	4	138	0	7	57	10	5	74	0	3	65	5	3	73	407
Hourly Total	0	18	393	50	18	461	0	46	480	9	20	535	0	35	200	32	11	267	0	11	245	20	11	276	1539
5:00 PM	0	4	97	15	2	116	0	11	134	6	14	151	0	9	66	9	1	84	0	5	73	5	5	83	434
5:15 PM	0	3	105	17	4	125	0	8	136	7	8	151	0	20	72	9	4	101	0	6	83	8	2	97	474
5:30 PM	0	5	98	19	8	122	0	17	132	5	6	154	0	11	63	5	4	79	0	2	52	6	2	60	415
5:45 PM	0	3	104	16	6	123	0	5	121	6	0	132	0	17	56	9	2	82	0	2	65	9	2	76	413
Hourly Total	0	15	404	67	20	486	0	41	523	24	28	588	0	57	257	32	11	346	0	15	273	28	11	316	1736
Grand Total	0	89	1941	338	106	2368	0	192	2172	68	269	2432	1	301	1170	269	110	1741	0	78	1193	125	77	1396	7937
Approach %	0.0	3.8	82.0	14.3	-	-	0.0	7.9	89.3	2.8	-	-	0.1	17.3	67.2	15.5	-	-	0.0	5.6	85.5	9.0	-	-	-
Total %	0.0	1.1	24.5	4.3	-	29.8	0.0	2.4	27.4	0.9	-	30.6	0.0	3.8	14.7	3.4	-	21.9	0.0	1.0	15.0	1.6	-	17.6	-
Lights	0	87	1911	335	-	2333	0	189	2151	66	-	2406	1	291	1122	257	-	1671	0	76	1151	121	-	1348	7758
% Lights	-	97.8	98.5	99.1	-	98.5	-	98.4	99.0	97.1	-	98.9	100.0	96.7	95.9	95.5	-	96.0	-	97.4	96.5	96.8	-	96.6	97.7
Buses	0	1	19	2	-	22	0	1	9	1	-	11	0	7	5	8	-	20	0	2	10	2	-	14	67
% Buses	-	1.1	1.0	0.6	-	0.9	-	0.5	0.4	1.5	-	0.5	0.0	2.3	0.4	3.0	-	1.1	-	2.6	0.8	1.6	-	1.0	0.8
Single-Unit Trucks	0	1	6	1	-	8	0	1	11	1	-	13	0	2	5	2	-	9	0	0	4	1	-	5	35

% Single-Unit Trucks	-	1.1	0.3	0.3	-	0.3	-	0.5	-	1.5	0.5	1.5	-	0.5	-	0.5	0.0	0.7	0.4	0.7	-	0.5	-	0.5	-	0.0	0.0	0.3	0.8	-	0.4	0.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	-	1	-	1	0	0	0	0	-	0	2
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.4	-	0.1	-	0.1	-	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	5	0	-	5	0	1	0	0	0	-	1	0	1	38	1	0	1	38	1	-	40	-	40	0	0	28	1	-	29	75
% Bicycles on Road	-	0.0	0.3	0.0	-	0.2	-	0.5	0.0	0.0	0.0	-	0.0	0.0	0.3	3.2	0.4	0.0	0.3	3.2	0.4	-	2.3	-	2.3	-	0.0	2.3	0.8	-	2.1	0.9
Pedestrians	-	-	-	-	106	-	-	-	-	-	-	269	-	-	-	-	-	-	-	-	-	110	-	110	-	-	-	-	-	77	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	100.0	-	-	-	-	-	100.0	-	-



Kenig, Lindgren, O'Hara, Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
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Count Name: East Avenue with Washington
Boulevard
Site Code:
Start Date: 05/15/2018
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Turning Movement Peak Hour Data (7:00 AM)

Start Time	Washington Boulevard Eastbound						Washington Boulevard Westbound						East Avenue Northbound						East Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	7	123	10	0	140	0	6	59	0	9	65	0	4	37	17	2	58	0	2	34	4	3	40	303
7:15 AM	0	9	107	32	4	148	0	5	65	2	29	72	0	21	55	27	4	103	0	3	52	6	3	61	384
7:30 AM	0	4	84	26	13	114	0	11	68	5	27	84	0	29	70	27	4	126	0	2	38	7	4	47	371
7:45 AM	0	6	96	41	4	143	0	11	97	6	27	114	0	46	64	35	8	145	0	6	64	12	3	82	484
Total	0	26	410	109	21	545	0	33	289	13	92	335	0	100	226	106	18	432	0	13	188	29	13	230	1542
Approach %	0.0	4.8	75.2	20.0	-	-	0.0	9.9	86.3	3.9	-	-	0.0	23.1	52.3	24.5	-	-	0.0	5.7	81.7	12.6	-	-	-
Total %	0.0	1.7	26.6	7.1	-	35.3	0.0	2.1	18.7	0.8	-	21.7	0.0	6.5	14.7	6.9	-	28.0	0.0	0.8	12.2	1.9	-	14.9	-
PHF	0.000	0.722	0.833	0.665	-	0.921	0.000	0.750	0.745	0.542	-	0.735	0.000	0.543	0.807	0.757	-	0.745	0.000	0.542	0.734	0.604	-	0.701	0.796
Lights	0	25	405	109	-	539	0	33	287	13	-	333	0	98	198	101	-	397	0	13	186	28	-	227	1496
% Lights	-	96.2	98.8	100.0	-	98.9	-	100.0	99.3	100.0	-	99.4	-	98.0	87.6	95.3	-	91.9	-	100.0	98.9	96.6	-	98.7	97.0
Buses	0	1	4	0	-	5	0	0	1	0	-	1	0	1	0	4	-	5	0	0	1	1	-	2	13
% Buses	-	3.8	1.0	0.0	-	0.9	-	0.0	0.3	0.0	-	0.3	-	1.0	0.0	3.8	-	1.2	-	0.0	0.5	3.4	-	0.9	0.8
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	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	1	0	-	1	0	0	0	1	-	1	0	0	0	0	-	0	2
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.3	0.0	-	0.3	-	0.0	0.0	0.9	-	0.2	-	0.0	0.0	0.0	-	0.0	0.1
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	1	28	0	-	29	0	0	1	0	-	1	31
% Bicycles on Road	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	1.0	12.4	0.0	-	6.7	-	0.0	0.5	0.0	-	0.4	2.0
Pedestrians	-	-	-	-	21	-	-	-	-	-	92	-	-	-	-	-	18	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Count Name: East Avenue with Washington
Boulevard
Site Code:
Start Date: 05/15/2018
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Turning Movement Peak Hour Data (3:00 PM)

Start Time	Washington Boulevard Eastbound						Washington Boulevard Westbound						East Avenue Northbound						East Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	1	81	19	7	101	0	8	91	2	33	101	0	13	40	13	13	66	0	4	50	3	2	57	325
3:15 PM	0	3	76	12	11	91	0	7	90	2	36	99	0	28	59	15	6	102	0	7	98	12	13	117	409
3:30 PM	0	4	71	12	4	87	0	9	93	5	30	107	0	15	62	13	6	90	0	3	58	4	7	65	349
3:45 PM	0	6	72	16	5	94	0	9	124	5	8	138	0	17	65	10	19	92	0	1	68	6	5	75	399
Total	0	14	300	59	27	373	0	33	398	14	107	445	0	73	226	51	44	350	0	15	274	25	27	314	1482
Approach %	0.0	3.8	80.4	15.8	-	-	0.0	7.4	89.4	3.1	-	-	0.0	20.9	64.6	14.6	-	-	0.0	4.8	87.3	8.0	-	-	-
Total %	0.0	0.9	20.2	4.0	-	25.2	0.0	2.2	26.9	0.9	-	30.0	0.0	4.9	15.2	3.4	-	23.6	0.0	1.0	18.5	1.7	-	21.2	-
PHF	0.000	0.583	0.926	0.776	-	0.923	0.000	0.917	0.802	0.700	-	0.806	0.000	0.652	0.869	0.850	-	0.858	0.000	0.536	0.899	0.521	-	0.671	0.906
Lights	0	14	294	59	-	367	0	33	394	13	-	440	0	71	221	48	-	340	0	14	261	23	-	298	1445
% Lights	-	100.0	98.0	100.0	-	98.4	-	100.0	99.0	92.9	-	98.9	-	97.3	97.8	94.1	-	97.1	-	93.3	95.3	92.0	-	94.9	97.5
Buses	0	0	5	0	-	5	0	0	3	0	-	3	0	2	1	3	-	6	0	1	2	1	-	4	18
% Buses	-	0.0	1.7	0.0	-	1.3	-	0.0	0.8	0.0	-	0.7	-	2.7	0.4	5.9	-	1.7	-	6.7	0.7	4.0	-	1.3	1.2
Single-Unit Trucks	0	0	1	0	-	1	0	0	1	1	-	2	0	0	2	0	-	2	0	0	0	0	-	0	5
% Single-Unit Trucks	-	0.0	0.3	0.0	-	0.3	-	0.0	0.3	7.1	-	0.4	-	0.0	0.9	0.0	-	0.6	-	0.0	0.0	0.0	-	0.0	0.3
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	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	11	1	-	12	14
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.9	0.0	-	0.6	-	0.0	4.0	4.0	-	3.8	0.9
Pedestrians	-	-	-	-	27	-	-	-	-	-	107	-	-	-	-	-	44	-	-	-	-	-	27	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Count Name: East Avenue with Washington
Boulevard
Site Code:
Start Date: 05/15/2018
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Turning Movement Peak Hour Data (5:00 PM)

Start Time	Washington Boulevard Eastbound						Washington Boulevard Westbound						East Avenue Northbound						East Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
5:00 PM	0	4	97	15	2	116	0	11	134	6	14	151	0	9	66	9	1	84	0	5	73	5	5	83	434
5:15 PM	0	3	105	17	4	125	0	8	136	7	8	151	0	20	72	9	4	101	0	6	83	8	2	97	474
5:30 PM	0	5	98	19	8	122	0	17	132	5	6	154	0	11	63	5	4	79	0	2	52	6	2	60	415
5:45 PM	0	3	104	16	6	123	0	5	121	6	0	132	0	17	56	9	2	82	0	2	65	9	2	76	413
Total	0	15	404	67	20	486	0	41	523	24	28	588	0	57	257	32	11	346	0	15	273	28	11	316	1736
Approach %	0.0	3.1	83.1	13.8	-	-	0.0	7.0	88.9	4.1	-	-	0.0	16.5	74.3	9.2	-	-	0.0	4.7	86.4	8.9	-	-	-
Total %	0.0	0.9	23.3	3.9	-	28.0	0.0	2.4	30.1	1.4	-	33.9	0.0	3.3	14.8	1.8	-	19.9	0.0	0.9	15.7	1.6	-	18.2	-
PHF	0.000	0.750	0.962	0.882	-	0.972	0.000	0.603	0.961	0.857	-	0.955	0.000	0.713	0.892	0.889	-	0.856	0.000	0.625	0.822	0.778	-	0.814	0.916
Lights	0	15	402	66	-	483	0	41	520	24	-	585	0	55	250	30	-	335	0	15	262	28	-	305	1708
% Lights	-	100.0	99.5	98.5	-	99.4	-	100.0	99.4	100.0	-	99.5	-	96.5	97.3	93.8	-	96.8	-	100.0	96.0	100.0	-	96.5	98.4
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	2	1	1	-	4	0	0	2	0	-	2	7
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	3.5	0.4	3.1	-	1.2	-	0.0	0.7	0.0	-	0.6	0.4
Single-Unit Trucks	0	0	0	1	-	1	0	0	2	0	-	2	0	0	1	1	-	2	0	0	2	0	-	2	7
% Single-Unit Trucks	-	0.0	0.0	1.5	-	0.2	-	0.0	0.4	0.0	-	0.3	-	0.0	0.4	3.1	-	0.6	-	0.0	0.7	0.0	-	0.6	0.4
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	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	2	0	-	2	0	0	0	0	-	0	0	0	5	0	-	5	0	0	7	0	-	7	14
% Bicycles on Road	-	0.0	0.5	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	1.9	0.0	-	1.4	-	0.0	2.6	0.0	-	2.2	0.8
Pedestrians	-	-	-	-	20	-	-	-	-	-	28	-	-	-	-	-	11	-	-	-	-	-	11	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Madison Street with Scoville Avenue
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Madison Street Eastbound					Madison Street Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	1	2	260	1	0	264	0	0	173	8	0	181	0	0	3	3	2	6	0	3	1	8	7	12	463
7:15 AM	0	2	229	5	2	236	1	2	223	5	1	231	0	1	3	5	0	9	0	6	3	9	2	18	494
7:30 AM	0	11	206	3	13	220	2	1	207	13	0	223	0	0	16	5	0	21	0	0	7	12	2	19	483
7:45 AM	0	13	248	5	2	266	0	0	227	18	2	245	0	3	19	10	2	32	0	7	7	15	0	29	572
Hourly Total	1	28	943	14	17	986	3	3	830	44	3	880	0	4	41	23	4	68	0	16	18	44	11	78	2012
8:00 AM	0	5	188	5	0	198	0	4	208	11	0	223	0	0	3	7	2	10	0	4	2	8	2	14	445
8:15 AM	0	7	203	1	0	211	0	1	192	5	2	198	0	0	1	4	2	5	0	4	0	10	1	14	428
8:30 AM	0	9	179	3	0	191	0	4	198	10	2	212	0	1	4	5	5	10	0	4	1	7	5	12	425
8:45 AM	0	6	159	3	1	168	1	6	178	8	2	193	0	2	1	2	3	5	0	2	3	13	2	18	384
Hourly Total	0	27	729	12	1	768	1	15	776	34	6	826	0	3	9	18	12	30	0	14	6	38	10	58	1682
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	8	180	1	0	189	0	3	213	13	9	229	0	3	0	3	13	6	0	6	0	17	1	23	447
2:45 PM	0	10	168	0	0	178	0	2	208	12	11	222	0	1	0	2	20	3	0	7	1	13	0	21	424
Hourly Total	0	18	348	1	0	367	0	5	421	25	20	451	0	4	0	5	33	9	0	13	1	30	1	44	871
3:00 PM	0	8	151	2	0	161	0	3	203	12	2	218	0	2	2	1	13	5	0	8	2	16	0	26	410
3:15 PM	1	11	202	6	0	220	1	2	176	17	31	196	0	1	2	5	22	8	0	9	3	24	0	36	460
3:30 PM	0	3	182	2	0	187	1	2	212	16	3	231	0	3	1	0	10	4	0	6	1	15	0	22	444
3:45 PM	0	9	172	0	1	181	1	2	219	20	6	242	0	1	2	0	9	3	0	4	0	16	0	20	446
Hourly Total	1	31	707	10	1	749	3	9	810	65	42	887	0	7	7	6	54	20	0	27	6	71	0	104	1760
4:00 PM	0	9	197	4	0	210	1	4	241	19	3	265	0	1	1	3	4	5	0	4	1	16	0	21	501
4:15 PM	0	6	181	1	0	188	0	0	222	13	1	235	0	3	0	1	2	4	0	4	0	10	0	14	441
4:30 PM	0	9	214	3	0	226	1	2	225	8	1	236	0	1	1	1	10	3	0	3	4	12	3	19	484
4:45 PM	0	14	192	4	2	210	1	1	196	17	1	215	0	0	2	1	3	3	0	2	2	15	1	19	447
Hourly Total	0	38	784	12	2	834	3	7	884	57	6	951	0	5	4	6	19	15	0	13	7	53	4	73	1873
5:00 PM	0	16	219	3	0	238	1	5	193	14	0	213	0	3	0	0	1	3	0	4	5	9	2	18	472
5:15 PM	0	10	205	4	0	219	1	2	195	17	1	215	0	1	1	0	3	2	0	4	4	5	9	13	449
5:30 PM	0	10	235	2	0	247	0	2	239	19	1	260	0	2	1	3	4	6	0	2	8	8	3	18	531
5:45 PM	0	17	228	0	0	245	0	3	232	25	0	260	0	2	1	3	4	6	0	3	3	8	1	14	525
Hourly Total	0	53	887	9	0	949	2	12	859	75	2	948	0	8	3	6	12	17	0	13	20	30	15	63	1977
Grand Total	2	195	4398	58	21	4653	12	51	4580	300	79	4943	0	31	64	64	134	159	0	96	58	266	41	420	10175
Approach %	0.0	4.2	94.5	1.2	-	-	0.2	1.0	92.7	6.1	-	-	0.0	19.5	40.3	40.3	-	-	0.0	22.9	13.8	63.3	-	-	-
Total %	0.0	1.9	43.2	0.6	-	45.7	0.1	0.5	45.0	2.9	-	48.6	0.0	0.3	0.6	0.6	-	1.6	0.0	0.9	0.6	2.6	-	4.1	-
Lights	2	190	4293	54	-	4539	12	50	4465	294	-	4821	0	29	45	60	-	134	0	89	51	260	-	400	9894
% Lights	100.0	97.4	97.6	93.1	-	97.5	100.0	98.0	97.5	98.0	-	97.5	-	93.5	70.3	93.8	-	84.3	-	92.7	87.9	97.7	-	95.2	97.2
Buses	0	1	36	1	-	38	0	0	44	0	-	44	0	0	0	2	-	2	0	2	0	4	-	6	90
% Buses	0.0	0.5	0.8	1.7	-	0.8	0.0	0.0	1.0	0.0	-	0.9	-	0.0	0.0	3.1	-	1.3	-	2.1	0.0	1.5	-	1.4	0.9
Single-Unit Trucks	0	2	52	3	-	57	0	1	56	5	-	62	0	2	0	0	-	2	0	2	0	1	-	3	124

% Single-Unit Trucks	0.0	1.0	1.2	5.2	-	1.2	0.0	2.0	1.2	1.7	-	1.3	-	6.5	0.0	0.0	-	1.3	-	2.1	0.0	0.4	-	0.7	1.2
Articulated Trucks	0	2	11	0	-	13	0	0	14	0	-	14	0	0	0	0	-	0	-	1	0	1	-	2	29
% Articulated Trucks	0.0	1.0	0.3	0.0	-	0.3	0.0	0.0	0.3	0.0	-	0.3	-	0.0	0.0	0.0	-	0.0	-	1.0	0.0	0.4	-	0.5	0.3
Bicycles on Road	0	0	6	0	-	6	0	0	1	1	-	2	0	0	19	2	-	21	-	2	7	0	-	9	38
% Bicycles on Road	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	0.3	-	0.0	-	0.0	29.7	3.1	-	13.2	-	2.1	12.1	0.0	-	2.1	0.4
Pedestrians	-	-	-	-	-	21	-	-	-	-	-	79	-	-	-	-	-	134	-	-	-	-	-	41	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-



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Count Name: Madison Street with Scoville Avenue
Site Code: 05/15/2018
Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Madison Street Eastbound						Madison Street Westbound						Scoville Avenue Northbound						Scoville Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	1	2	260	1	0	264	0	0	173	8	0	181	0	0	3	3	2	6	0	3	1	8	7	12	463
7:15 AM	0	2	229	5	2	236	1	2	223	5	1	231	0	1	3	5	0	9	0	6	3	9	2	18	494
7:30 AM	0	11	206	3	13	220	2	1	207	13	0	223	0	0	16	5	0	21	0	0	7	12	2	19	483
7:45 AM	0	13	248	5	2	266	0	0	227	18	2	245	0	3	19	10	2	32	0	7	7	15	0	29	572
Total	1	28	943	14	17	986	3	3	830	44	3	880	0	4	41	23	4	68	0	16	18	44	11	78	2012
Approach %	0.1	2.8	95.6	1.4	-	-	0.3	0.3	94.3	5.0	-	-	0.0	5.9	60.3	33.8	-	-	0.0	20.5	23.1	56.4	-	-	-
Total %	0.0	1.4	46.9	0.7	-	49.0	0.1	0.1	41.3	2.2	-	43.7	0.0	0.2	2.0	1.1	-	3.4	0.0	0.8	0.9	2.2	-	3.9	-
PHF	0.250	0.538	0.907	0.700	-	0.927	0.375	0.375	0.914	0.611	-	0.898	0.000	0.333	0.539	0.575	-	0.531	0.000	0.571	0.643	0.733	-	0.672	0.879
Lights	1	28	920	13	-	962	3	3	811	40	-	857	0	4	25	20	-	49	0	14	17	39	-	70	1938
% Lights	100.0	100.0	97.6	92.9	-	97.6	100.0	100.0	97.7	90.9	-	97.4	-	100.0	61.0	87.0	-	72.1	-	87.5	94.4	88.6	-	89.7	96.3
Buses	0	0	13	0	-	13	0	0	7	0	-	7	0	0	0	1	-	1	0	1	0	3	-	4	25
% Buses	0.0	0.0	1.4	0.0	-	1.3	0.0	0.0	0.8	0.0	-	0.8	-	0.0	0.0	4.3	-	1.5	-	6.3	0.0	6.8	-	5.1	1.2
Single-Unit Trucks	0	0	8	1	-	9	0	0	10	3	-	13	0	0	0	0	-	0	0	0	0	1	-	1	23
% Single-Unit Trucks	0.0	0.0	0.8	7.1	-	0.9	0.0	0.0	1.2	6.8	-	1.5	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	2.3	-	1.3	1.1
Articulated Trucks	0	0	2	0	-	2	0	0	2	0	-	2	0	0	0	0	-	0	0	1	0	1	-	2	6
% Articulated Trucks	0.0	0.0	0.2	0.0	-	0.2	0.0	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	6.3	0.0	2.3	-	2.6	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	1	-	1	0	0	16	2	-	18	0	0	1	0	-	1	20
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	2.3	-	0.1	-	0.0	39.0	8.7	-	26.5	-	0.0	5.6	0.0	-	1.3	1.0
Pedestrians	-	-	-	-	17	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	11	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Count Name: Madison Street with Scoville Avenue
Site Code: 05/15/2018
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Turning Movement Peak Hour Data (3:00 PM)

Start Time	Madison Street Eastbound					Madison Street Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
3:00 PM	0	8	151	2	0	161	0	3	203	12	2	218	0	2	2	1	13	5	0	8	2	16	0	26	410
3:15 PM	1	11	202	6	0	220	1	2	176	17	31	196	0	1	2	5	22	8	0	9	3	24	0	36	460
3:30 PM	0	3	182	2	0	187	1	2	212	16	3	231	0	3	1	0	10	4	0	6	1	15	0	22	444
3:45 PM	0	9	172	0	1	181	1	2	219	20	6	242	0	1	2	0	9	3	0	4	0	16	0	20	446
Total	1	31	707	10	1	749	3	9	810	65	42	887	0	7	7	6	54	20	0	27	6	71	0	104	1760
Approach %	0.1	4.1	94.4	1.3	-	-	0.3	1.0	91.3	7.3	-	-	0.0	35.0	35.0	30.0	-	-	0.0	26.0	5.8	68.3	-	-	-
Total %	0.1	1.8	40.2	0.6	-	42.6	0.2	0.5	46.0	3.7	-	50.4	0.0	0.4	0.4	0.3	-	1.1	0.0	1.5	0.3	4.0	-	5.9	-
PHF	0.250	0.705	0.875	0.417	-	0.851	0.750	0.750	0.925	0.813	-	0.916	0.000	0.583	0.875	0.300	-	0.625	0.000	0.750	0.500	0.740	-	0.722	0.957
Lights	1	31	687	8	-	727	3	9	800	65	-	877	0	6	6	6	-	18	0	24	6	71	-	101	1723
% Lights	100.0	100.0	97.2	80.0	-	97.1	100.0	100.0	98.8	100.0	-	98.9	-	85.7	85.7	100.0	-	90.0	-	88.9	100.0	100.0	-	97.1	97.9
Buses	0	0	8	1	-	9	0	0	4	0	-	4	0	0	0	0	-	0	0	1	0	0	0	1	14
% Buses	0.0	0.0	1.1	10.0	-	1.2	0.0	0.0	0.5	0.0	-	0.5	-	0.0	0.0	0.0	-	0.0	-	3.7	0.0	0.0	-	1.0	0.8
Single-Unit Trucks	0	0	9	1	-	10	0	0	5	0	-	5	0	1	0	0	-	1	0	0	0	0	0	0	16
% Single-Unit Trucks	0.0	0.0	1.3	10.0	-	1.3	0.0	0.0	0.6	0.0	-	0.6	-	14.3	0.0	0.0	-	5.0	-	0.0	0.0	0.0	-	0.0	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	0	0	1
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Bicycles on Road	0	0	3	0	-	3	0	0	0	0	-	0	0	0	1	0	-	1	0	2	0	0	-	2	6
% Bicycles on Road	0.0	0.0	0.4	0.0	-	0.4	0.0	0.0	0.0	0.0	-	0.0	-	0.0	14.3	0.0	-	5.0	-	7.4	0.0	0.0	-	1.9	0.3
Pedestrians	-	-	-	-	1	-	-	-	-	-	42	-	-	-	-	-	54	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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Count Name: Madison Street with Scoville Avenue
Site Code:
Start Date: 05/15/2018
Page No.: 5

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Madison Street Eastbound					Madison Street Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound										
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total	
5:00 PM	0	16	219	3	0	238	1	5	193	14	0	213	0	3	0	0	0	1	3	0	4	5	9	2	18	472
5:15 PM	0	10	205	4	0	219	1	2	195	17	1	215	0	1	1	1	0	3	2	0	4	4	5	9	13	449
5:30 PM	0	10	235	2	0	247	0	2	239	19	1	260	0	2	1	3	4	6	0	2	8	8	3	18	531	
5:45 PM	0	17	228	0	0	245	0	3	232	25	0	260	0	2	1	3	4	6	0	3	3	8	1	14	525	
Total	0	53	887	9	0	949	2	12	859	75	2	948	0	8	3	6	12	17	0	13	20	30	15	63	1977	
Approach %	0.0	5.6	93.5	0.9	-	-	0.2	1.3	90.6	7.9	-	-	0.0	47.1	17.6	35.3	-	-	0.0	20.6	31.7	47.6	-	-	-	
Total %	0.0	2.7	44.9	0.5	-	48.0	0.1	0.6	43.4	3.8	-	48.0	0.0	0.4	0.2	0.3	-	0.9	0.0	0.7	1.0	1.5	-	3.2	-	
PHF	0.000	0.779	0.944	0.563	-	0.961	0.500	0.600	0.899	0.750	-	0.912	0.000	0.667	0.750	0.500	-	0.708	0.000	0.813	0.625	0.833	-	0.875	0.931	
Lights	0	51	876	9	-	936	2	12	840	75	-	929	0	8	3	6	-	17	0	12	18	30	-	60	1942	
% Lights	-	96.2	98.8	100.0	-	98.6	100.0	100.0	97.8	100.0	-	98.0	-	100.0	100.0	100.0	-	100.0	-	92.3	90.0	100.0	-	95.2	98.2	
Buses	0	0	3	0	-	3	0	0	9	0	-	9	0	0	0	0	-	0	0	0	0	0	-	0	12	
% Buses	-	0.0	0.3	0.0	-	0.3	0.0	0.0	1.0	0.0	-	0.9	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.6	
Single-Unit Trucks	0	1	8	0	-	9	0	0	8	0	-	8	0	0	0	0	-	0	0	1	0	0	-	1	18	
% Single-Unit Trucks	-	1.9	0.9	0.0	-	0.9	0.0	0.0	0.9	0.0	-	0.8	-	0.0	0.0	0.0	-	0.0	-	7.7	0.0	0.0	-	1.6	0.9	
Articulated Trucks	0	1	0	0	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3	
% Articulated Trucks	-	1.9	0.0	0.0	-	0.1	0.0	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.2	
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	2	
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	10.0	0.0	-	3.2	0.1	
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	12	-	-	-	-	-	15	-	-	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Washington Boulevard with
Scoville Avenue
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Washington Boulevard Eastbound					Washington Boulevard Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	2	0	116	9	1	127	0	2	63	0	1	65	0	0	3	9	2	12	0	0	1	1	1	2	206
7:15 AM	0	2	126	15	3	143	0	6	69	0	2	75	0	2	7	10	11	11	0	0	0	3	0	3	232
7:30 AM	0	1	104	11	5	116	0	9	80	2	4	91	0	3	6	21	4	30	0	1	1	1	3	3	240
7:45 AM	0	4	120	7	11	131	0	13	110	1	4	124	0	0	15	33	6	48	0	0	1	3	0	4	307
Hourly Total	2	7	466	42	20	517	0	30	322	3	11	355	0	5	26	70	22	101	0	1	3	8	4	12	985
8:00 AM	0	0	98	4	1	102	0	7	107	1	0	115	0	1	1	5	1	7	0	0	0	1	1	1	225
8:15 AM	0	0	89	2	1	91	0	4	82	1	2	87	0	2	0	11	4	13	0	0	1	3	2	4	195
8:30 AM	0	1	78	6	2	85	0	4	78	0	0	82	0	0	1	14	6	15	0	1	1	2	0	4	186
8:45 AM	0	4	89	5	2	98	0	6	75	0	0	81	0	1	0	11	4	12	0	0	0	0	1	0	191
Hourly Total	0	5	354	17	6	376	0	21	342	2	2	385	0	4	2	41	15	47	0	1	2	6	4	9	797
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	2	70	12	2	84	0	8	86	0	0	94	0	2	0	9	1	11	0	0	1	0	1	1	190
2:45 PM	0	0	54	4	1	58	0	8	97	0	0	105	0	0	1	12	0	13	0	0	0	1	2	1	177
Hourly Total	0	2	124	16	3	142	0	16	183	0	0	199	0	2	1	21	1	24	0	0	1	1	3	2	367
3:00 PM	0	1	95	7	3	103	0	4	93	0	2	97	0	5	0	7	4	12	0	1	12	0	1	13	225
3:15 PM	0	1	88	8	36	97	0	13	87	0	9	100	0	6	1	26	9	33	0	0	4	0	6	4	234
3:30 PM	0	0	85	5	6	90	0	7	102	4	4	113	0	5	0	14	14	19	0	0	0	0	8	0	222
3:45 PM	0	0	77	8	3	85	0	5	136	0	11	141	0	1	0	23	9	24	0	0	1	0	7	1	251
Hourly Total	0	2	345	28	48	375	0	29	418	4	26	451	0	17	1	70	36	88	0	1	17	0	22	18	932
4:00 PM	0	1	107	7	2	115	0	10	130	0	1	140	0	3	0	16	3	19	0	0	1	1	1	2	276
4:15 PM	0	1	87	6	7	94	0	3	112	1	2	116	0	5	1	20	1	26	0	0	0	0	1	0	236
4:30 PM	0	0	105	3	8	108	0	13	141	0	3	154	0	0	1	14	2	15	0	0	4	0	2	4	281
4:45 PM	0	0	115	5	10	120	0	13	138	0	4	151	0	2	1	17	3	20	0	0	0	1	6	1	292
Hourly Total	0	2	414	21	27	437	0	39	521	1	10	561	0	10	3	67	9	80	0	0	5	2	11	7	1085
5:00 PM	0	1	105	7	3	113	0	13	139	0	3	152	0	9	0	15	1	24	0	1	1	0	5	2	291
5:15 PM	0	4	108	3	3	115	0	8	149	1	2	158	0	4	0	13	3	17	0	0	1	2	4	3	293
5:30 PM	0	4	91	8	3	103	0	12	145	0	3	157	0	3	0	14	3	17	0	1	0	2	4	3	280
5:45 PM	0	0	117	4	3	121	0	18	129	1	4	148	0	3	0	16	7	19	0	0	2	1	1	3	291
Hourly Total	0	9	421	22	12	452	0	51	562	2	12	615	0	19	0	58	14	77	0	2	4	5	14	11	1155
Grand Total	2	27	2124	146	116	2299	0	186	2348	12	61	2546	0	57	33	327	97	417	0	5	32	22	58	59	5321
Approach %	0.1	1.2	92.4	6.4	-	-	0.0	7.3	92.2	0.5	-	-	0.0	13.7	7.9	78.4	-	-	0.0	8.5	54.2	37.3	-	-	-
Total %	0.0	0.5	39.9	2.7	-	43.2	0.0	3.5	44.1	0.2	-	47.8	0.0	1.1	0.6	6.1	-	7.8	0.0	0.1	0.6	0.4	-	1.1	-
Lights	2	24	2088	141	-	2255	0	182	2320	6	-	2508	0	57	2	324	-	383	0	4	4	22	-	30	5176
% Lights	100.0	88.9	98.3	96.6	-	98.1	-	97.8	98.8	50.0	-	98.5	-	100.0	6.1	99.1	-	91.8	-	80.0	12.5	100.0	-	50.8	97.3
Buses	0.0	0.0	24	4	-	28	0	2	12	0	-	14	0	0	0	0	-	0	0	0	0	0	-	0	42
% Buses	0.0	0.0	1.1	2.7	-	1.2	-	1.1	0.5	0.0	-	0.5	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.8
Single-Unit Trucks	0	1	8	0	-	9	0	1	12	0	-	13	0	0	0	2	-	2	0	0	0	0	-	0	24

% Single-Unit Trucks	0.0	3.7	0.4	0.0	-	0.4	-	0.5	0.0	-	0.5	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.5
Articulated Trucks	0	0	0	1	-	1	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	4
% Articulated Trucks	0.0	0.0	0.0	0.7	-	0.0	-	0.0	0.1	0.0	0.1	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.1
Bicycles on Road	0	2	4	0	-	6	0	1	1	6	8	0	0	31	1	1	32	0	1	28	0	29	75
% Bicycles on Road	0.0	7.4	0.2	0.0	-	0.3	-	0.5	0.0	50.0	0.3	-	0.0	93.9	0.3	7.7	-	20.0	87.5	0.0	-	49.2	1.4
Pedestrians	-	-	-	-	-	116	-	-	-	-	61	-	-	-	-	97	-	-	-	-	-	58	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	100.0	-



Kenig, Lindgren, O'Hara, Aboona, Inc.
 Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
 (847)518-9990

Count Name: Washington Boulevard with
 Scoville Avenue
 Site Code:
 Start Date: 05/15/2018
 Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Washington Boulevard Eastbound						Washington Boulevard Westbound						Scoville Avenue Northbound						Scoville Avenue Southbound												
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	2	0	116	9	1	127	0	2	63	0	1	65	0	0	3	9	2	12	0	0	1	1	1	2	0	0	0	1	1	1	2
7:15 AM	0	2	126	15	3	143	0	6	69	0	2	75	0	2	2	7	10	11	0	0	0	3	0	3	0	0	0	3	0	3	
7:30 AM	0	1	104	11	5	116	0	9	80	2	4	91	0	3	6	21	4	30	0	1	1	1	3	3	0	0	1	1	3	4	
7:45 AM	0	4	120	7	11	131	0	13	110	1	4	124	0	0	15	33	6	48	0	0	1	3	0	4	0	0	1	3	0	4	
Total	2	7	466	42	20	517	0	30	322	3	11	355	0	5	26	70	22	101	0	1	3	8	4	12	0	1	3	8	4	12	
Approach %	0.4	1.4	90.1	8.1	-	-	0.0	8.5	90.7	0.8	-	-	0.0	5.0	25.7	69.3	-	-	0.0	8.3	25.0	66.7	-	-	0.0	0.0	0.1	0.3	0.8	-	1.2
Total %	0.2	0.7	47.3	4.3	-	52.5	0.0	3.0	32.7	0.3	-	36.0	0.0	0.5	2.6	7.1	-	10.3	0.0	0.1	0.3	0.8	-	-	0.000	0.250	0.750	0.667	-	0.750	
PHF	0.250	0.438	0.925	0.700	-	0.904	0.000	0.577	0.732	0.375	-	0.716	0.000	0.417	0.433	0.530	-	0.526	0.000	0.250	0.750	0.667	-	-	0.000	0.250	0.750	0.667	-	0.750	
Lights	2	5	462	37	-	506	0	30	319	1	-	350	0	5	0	69	-	74	0	1	1	8	-	10	0	1	1	8	-	10	
% Lights	100.0	71.4	99.1	88.1	-	97.9	-	100.0	99.1	33.3	-	98.6	-	100.0	0.0	98.6	-	73.3	-	100.0	33.3	100.0	-	83.3	95.4	-	100.0	33.3	100.0	-	83.3
Buses	0	0	3	4	-	7	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0
% Buses	0.0	0.0	0.6	9.5	-	1.4	-	0.0	0.3	0.0	-	0.3	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.8	-	0.0	0.0	0.0	-	0.0
Single-Unit Trucks	0	1	1	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0
% Single-Unit Trucks	0.0	14.3	0.2	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.2	-	0.0	0.0	0.0	-	0.0
Articulated Trucks	0	0	0	1	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0
% Articulated Trucks	0.0	0.0	0.0	2.4	-	0.2	-	0.0	0.6	0.0	-	0.6	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.3	-	0.0	0.0	0.0	-	0.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	2	-	2	0	0	26	1	-	27	0	0	2	0	-	2	32	-	0	0	2	-	2
% Bicycles on Road	0.0	14.3	0.0	0.0	-	0.2	-	0.0	0.0	66.7	-	0.6	-	0.0	100.0	1.4	-	26.7	-	0.0	66.7	0.0	-	16.7	3.2	-	0.0	66.7	0.0	-	16.7
Pedestrians	-	-	-	-	20	-	-	-	-	-	11	-	-	-	-	-	-	22	-	-	-	-	4	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
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Count Name: Washington Boulevard with
Scoville Avenue
Site Code:
Start Date: 05/15/2018
Page No.: 4

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Washington Boulevard Eastbound					Washington Boulevard Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound									
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
3:00 PM	0	1	95	7	3	103	0	4	93	0	2	97	0	5	0	7	4	12	0	1	12	0	1	13	225
3:15 PM	0	1	88	8	36	97	0	13	87	0	9	100	0	6	1	26	9	33	0	0	4	0	6	4	234
3:30 PM	0	0	85	5	6	90	0	7	102	4	4	113	0	5	0	14	14	19	0	0	0	0	8	0	222
3:45 PM	0	0	77	8	3	85	0	5	136	0	11	141	0	1	0	23	9	24	0	0	1	0	7	1	251
Total	0	2	345	28	48	375	0	29	418	4	26	451	0	17	1	70	36	88	0	1	17	0	22	18	932
Approach %	0.0	0.5	92.0	7.5	-	-	0.0	6.4	92.7	0.9	-	-	0.0	19.3	1.1	79.5	-	-	0.0	5.6	94.4	0.0	-	-	-
Total %	0.0	0.2	37.0	3.0	-	40.2	0.0	3.1	44.8	0.4	-	48.4	0.0	1.8	0.1	7.5	-	9.4	0.0	0.1	1.8	0.0	-	1.9	-
PHF	0.000	0.500	0.908	0.875	-	0.910	0.000	0.558	0.768	0.250	-	0.800	0.000	0.708	0.250	0.673	-	0.667	0.000	0.250	0.354	0.000	-	0.346	0.928
Lights	0	2	335	28	-	365	0	28	413	0	-	441	0	17	0	70	-	87	0	0	0	0	-	0	893
% Lights	-	100.0	97.1	100.0	-	97.3	-	96.6	98.8	0.0	-	97.8	-	100.0	0.0	100.0	-	98.9	-	0.0	0.0	-	-	0.0	95.8
Buses	0	0	9	0	-	9	0	1	3	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	13
% Buses	-	0.0	2.6	0.0	-	2.4	-	3.4	0.7	0.0	-	0.9	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	1.4
Single-Unit Trucks	0	0	1	0	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3
% Single-Unit Trucks	-	0.0	0.3	0.0	-	0.3	-	0.0	0.5	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	0.3
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	0.0	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	4	-	4	0	0	1	0	-	1	0	1	17	0	-	18	23
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	100.0	-	0.9	-	0.0	100.0	0.0	-	1.1	-	100.0	100.0	-	-	100.0	2.5
Pedestrians	-	-	-	-	48	-	-	-	-	26	-	36	-	-	-	-	-	22	-	-	-	-	-	22	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-



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Count Name: Washington Boulevard with
Scoville Avenue
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Start Date: 05/15/2018
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Turning Movement Peak Hour Data (5:00 PM)

Start Time	Washington Boulevard Eastbound						Washington Boulevard Westbound						Scoville Avenue Northbound						Scoville Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
5:00 PM	0	1	105	7	3	113	0	13	139	0	3	152	0	9	0	15	1	24	0	1	1	0	5	2	291
5:15 PM	0	4	108	3	3	115	0	8	149	1	2	158	0	4	0	13	3	17	0	0	1	2	4	3	293
5:30 PM	0	4	91	8	3	103	0	12	145	0	3	157	0	3	0	14	3	17	0	1	0	2	4	3	280
5:45 PM	0	0	117	4	3	121	0	18	129	1	4	148	0	3	0	16	7	19	0	0	2	1	1	3	291
Total	0	9	421	22	12	452	0	51	562	2	12	615	0	19	0	58	14	77	0	2	4	5	14	11	1155
Approach %	0.0	2.0	93.1	4.9	-	-	0.0	8.3	91.4	0.3	-	-	0.0	24.7	0.0	75.3	-	-	0.0	18.2	36.4	45.5	-	-	-
Total %	0.0	0.8	36.5	1.9	-	39.1	0.0	4.4	48.7	0.2	-	53.2	0.0	1.6	0.0	5.0	-	6.7	0.0	0.2	0.3	0.4	-	1.0	-
PHF	0.000	0.563	0.900	0.688	-	0.934	0.000	0.708	0.943	0.500	-	0.973	0.000	0.528	0.000	0.906	-	0.802	0.000	0.500	0.500	0.625	-	0.917	0.985
Lights	0	9	418	22	-	449	0	50	559	2	-	611	0	19	0	58	-	77	0	2	1	5	-	8	1145
% Lights	-	100.0	99.3	100.0	-	99.3	-	98.0	99.5	100.0	-	99.3	-	100.0	-	100.0	-	100.0	-	100.0	25.0	100.0	-	72.7	99.1
Buses	0	0	1	0	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3
% Buses	-	0.0	0.2	0.0	-	0.2	-	0.0	0.4	0.0	-	0.3	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
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	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	2	0	-	2	0	1	0	0	-	1	0	0	0	0	-	0	0	0	3	0	-	3	6
% Bicycles on Road	-	0.0	0.5	0.0	-	0.4	-	2.0	0.0	0.0	-	0.2	-	0.0	-	0.0	-	0.0	-	0.0	75.0	0.0	-	27.3	0.5
Pedestrians	-	-	-	-	12	-	-	-	-	-	12	-	-	-	-	-	-	14	-	-	-	-	-	14	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Outbound Only
Access Drive
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Fenwick Access Drive Westbound				East Avenue Northbound				East Avenue Southbound							
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	12	11	4	23	0	55	0	0	55	0	1	48	1	49	127
7:15 AM	0	12	34	5	46	0	63	0	0	63	0	0	92	1	92	201
7:30 AM	0	12	50	9	62	0	79	0	0	79	0	0	70	12	70	211
7:45 AM	0	8	64	6	72	0	78	0	1	78	0	0	113	9	113	263
Hourly Total	0	44	159	24	203	0	275	0	1	275	0	1	323	23	324	802
8:00 AM	0	2	3	1	5	0	48	0	0	48	0	0	64	1	64	117
8:15 AM	0	2	1	0	3	0	61	0	0	61	0	0	48	2	48	112
8:30 AM	0	1	1	1	2	0	71	0	0	71	0	0	38	0	38	111
8:45 AM	0	1	2	0	3	0	51	0	0	51	0	0	43	0	43	97
Hourly Total	0	6	7	2	13	0	231	0	0	231	0	0	193	3	193	437
***BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	6	12	4	18	0	46	0	2	46	1	1	58	2	60	124
2:45 PM	0	3	10	6	13	0	33	0	0	33	1	0	56	2	57	103
Hourly Total	0	9	22	10	31	0	79	0	2	79	2	1	114	4	117	227
3:00 PM	0	10	15	11	25	0	56	0	7	56	0	0	72	6	72	153
3:15 PM	0	8	24	25	32	0	69	0	3	69	0	0	120	2	120	221
3:30 PM	0	9	18	18	27	0	71	0	1	71	0	0	85	3	85	183
3:45 PM	0	7	18	7	25	0	71	0	0	71	0	0	97	0	97	193
Hourly Total	0	34	75	61	109	0	267	0	11	267	0	0	374	11	374	750
4:00 PM	0	10	12	2	22	0	47	1	1	48	0	0	94	3	94	164
4:15 PM	0	5	6	7	11	0	55	0	0	55	0	0	79	1	79	145
4:30 PM	0	3	8	2	11	0	67	0	1	67	0	0	89	0	89	167
4:45 PM	0	1	4	4	5	0	72	0	0	72	0	0	79	1	79	156
Hourly Total	0	19	30	15	49	0	241	1	2	242	0	0	341	5	341	632
5:00 PM	0	4	10	4	14	0	74	0	1	74	0	0	96	1	96	184
5:15 PM	0	2	11	6	13	0	85	0	2	85	0	0	108	0	108	206
5:30 PM	0	1	8	5	9	0	76	1	2	77	0	1	87	0	88	174
5:45 PM	0	5	4	5	9	0	72	0	1	72	0	1	83	1	84	165
Hourly Total	0	12	33	20	45	0	307	1	6	308	0	2	374	2	376	729
Grand Total	0	124	326	132	450	0	1400	2	22	1402	2	4	1719	48	1725	3577
Approach %	0.0	27.6	72.4	-	-	0.0	99.9	0.1	-	-	0.1	0.2	99.7	-	-	-
Total %	0.0	3.5	9.1	-	12.6	0.0	39.1	0.1	-	39.2	0.1	0.1	48.1	-	48.2	-
Lights	0	119	318	-	437	0	1341	2	-	1343	2	3	1687	-	1672	3452
% Lights	-	96.0	97.5	-	97.1	-	95.8	100.0	-	95.8	100.0	75.0	97.0	-	96.9	96.5
Buses	0	4	8	-	12	0	12	0	-	12	0	0	15	-	15	39
% Buses	-	3.2	2.5	-	2.7	-	0.9	0.0	-	0.9	0.0	0.0	0.9	-	0.9	1.1
Single-Unit Trucks	0	0	0	-	0	0	7	0	-	7	0	0	6	-	6	13
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.5	0.0	-	0.5	0.0	0.0	0.3	-	0.3	0.4

Articulated Trucks	0	1	0	-	1	0	1	0	-	1	0	0	0	0	0	0	0	0	0	2
% Articulated Trucks	-	0.8	0.0	-	0.2	-	0.1	0.0	-	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	-	0	0	39	0	-	39	0	1	31	32	71	-	-	-	-	71
% Bicycles on Road	-	0.0	0.0	-	0.0	-	2.8	0.0	-	2.8	0.0	25.0	1.8	1.9	2.0	-	-	-	-	2.0
Pedestrians	-	-	-	-	132	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-
																				48
																				100.0



Kenig, Lindgren, O'Hara, Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Outbound Only
Access Drive
Site Code:
Start Date: 05/15/2018
Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Fenwick Access Drive Westbound					East Avenue Northbound					East Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	12	11	4	23	0	55	0	0	55	0	1	48	1	49	127
7:15 AM	0	12	34	5	46	0	63	0	0	63	0	0	92	1	92	201
7:30 AM	0	12	50	9	62	0	79	0	0	79	0	0	70	12	70	211
7:45 AM	0	8	64	6	72	0	78	0	1	78	0	0	113	9	113	263
Total	0	44	159	24	203	0	275	0	1	275	0	1	323	23	324	802
Approach %	0.0	21.7	78.3	-	-	0.0	100.0	0.0	-	-	0.0	0.3	99.7	-	-	-
Total %	0.0	5.5	19.8	-	25.3	0.0	34.3	0.0	-	34.3	0.0	0.1	40.3	-	40.4	-
PHF	0.000	0.917	0.621	-	0.705	0.000	0.870	0.000	-	0.870	0.000	0.250	0.715	-	0.717	0.762
Lights	0	44	158	-	202	0	239	0	-	239	0	0	322	-	322	763
% Lights	-	100.0	99.4	-	99.5	-	86.9	-	-	86.9	-	0.0	99.7	-	99.4	95.1
Buses	0	0	1	-	1	0	4	0	-	4	0	0	1	-	1	6
% Buses	-	0.0	0.6	-	0.5	-	1.5	0.0	-	1.5	-	0.0	0.3	-	0.3	0.7
Single-Unit Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.4	0.0	-	0.4	-	0.0	0.0	-	0.0	0.1
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.4	0.0	-	0.4	-	0.0	0.0	-	0.0	0.1
Bicycles on Road	0	0	0	-	0	0	30	0	-	30	0	1	0	-	1	31
% Bicycles on Road	-	0.0	0.0	-	0.0	-	10.9	0.0	-	10.9	-	100.0	0.0	-	0.3	3.9
Pedestrians	-	-	-	24	-	-	-	-	1	-	-	-	-	23	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Kenig, Lindgren, O'Hara, Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Outbound Only
Access Drive
Site Code:
Start Date: 05/15/2018
Page No: 4

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Fenwick Access Drive Westbound				East Avenue Northbound				East Avenue Southbound							
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
3:00 PM	0	10	15	11	25	0	56	0	7	56	0	0	72	6	72	153
3:15 PM	0	8	24	25	32	0	69	0	3	69	0	0	120	2	120	221
3:30 PM	0	9	18	18	27	0	71	0	1	71	0	0	85	3	85	183
3:45 PM	0	7	18	7	25	0	71	0	0	71	0	0	97	0	97	193
Total	0	34	75	61	109	0	267	0	11	267	0	0	374	11	374	750
Approach %	0.0	31.2	68.8	-	-	0.0	100.0	0.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	4.5	10.0	-	14.5	0.0	35.6	0.0	-	35.6	0.0	0.0	49.9	-	49.9	-
PHF	0.000	0.850	0.781	-	0.852	0.000	0.940	0.000	-	0.940	0.000	0.000	0.779	-	0.779	0.848
Lights	0	32	71	-	103	0	261	0	-	261	0	0	361	-	361	725
% Lights	-	94.1	94.7	-	94.5	-	97.8	-	-	97.8	-	-	96.5	-	96.5	96.7
Buses	0	2	4	-	6	0	3	0	-	3	0	0	2	-	2	11
% Buses	-	5.9	5.3	-	5.5	-	1.1	0	-	1.1	-	-	0.5	-	0.5	1.5
Single-Unit Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.4	0	-	0.4	-	-	0.0	-	0.0	0.1
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	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	2	0	-	2	0	0	11	-	11	13
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.7	0	-	0.7	-	-	2.9	-	2.9	1.7
Pedestrians	-	-	-	61	-	-	-	-	11	-	-	-	-	11	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Kenig, Lindgren, O'Hara, Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: East Avenue with Outbound Only
Access Drive
Site Code:
Start Date: 05/15/2018
Page No.: 5

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Fenwick Access Drive Westbound				East Avenue Northbound				East Avenue Southbound							
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
5:00 PM	0	4	10	4	14	0	74	0	1	74	0	0	96	1	96	184
5:15 PM	0	2	11	6	13	0	85	0	2	85	0	0	108	0	108	206
5:30 PM	0	1	8	5	9	0	76	1	2	77	0	1	87	0	88	174
5:45 PM	0	5	4	5	9	0	72	0	1	72	0	1	83	1	84	165
Total	0	12	33	20	45	0	307	1	6	308	0	2	374	2	376	729
Approach %	0.0	26.7	73.3	-	-	0.0	99.7	0.3	-	-	0.0	0.5	99.5	-	-	-
Total %	0.0	1.6	4.5	-	6.2	0.0	42.1	0.1	-	42.2	0.0	0.3	51.3	-	51.6	-
PHF	0.000	0.600	0.750	-	0.804	0.000	0.903	0.250	-	0.906	0.000	0.500	0.866	-	0.870	0.885
Lights	0	12	31	-	43	0	301	1	-	302	0	2	361	-	363	708
% Lights	-	100.0	93.9	-	95.6	-	98.0	100.0	-	98.1	-	100.0	96.5	-	96.5	97.1
Buses	0	0	2	-	2	0	2	0	-	2	0	0	3	-	3	7
% Buses	-	0.0	6.1	-	4.4	-	0.7	0.0	-	0.6	-	0.0	0.8	-	0.8	1.0
Single-Unit Trucks	0	0	0	-	0	0	1	0	-	1	0	0	2	-	2	3
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.3	0.0	-	0.3	-	0.0	0.5	-	0.5	0.4
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	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	3	0	-	3	0	0	8	-	8	11
% Bicycles on Road	-	0.0	0.0	-	0.0	-	1.0	0.0	-	1.0	-	0.0	2.1	-	2.1	1.5
Pedestrians	-	-	-	20	-	-	-	-	6	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
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Count Name: Madison Avenue with Fenwick Exit
 Only Access Drive
 Site Code:
 Start Date: 05/15/2018
 Page No: 1

Direction (Southbound)

Start Time	Lights	Buses	Single-Unit Trucks	Articulated Trucks	Bicycles on Road	Total
7:00 AM	1	0	0	0	0	1
7:15 AM	4	0	0	0	0	4
7:30 AM	3	0	0	0	0	3
7:45 AM	15	0	0	0	0	15
8:00 AM	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	1
2:30 PM	5	0	0	0	0	5
2:45 PM	0	0	0	0	0	0
3:00 PM	4	0	0	0	0	4
3:15 PM	8	0	0	0	0	8
3:30 PM	2	1	0	0	0	3
3:45 PM	1	0	0	0	0	1
4:00 PM	2	0	0	0	0	2
4:15 PM	1	0	0	0	0	1
4:30 PM	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0
5:00 PM	2	0	0	0	0	2
5:15 PM	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0
Total	51	1	0	0	0	52
Total %	98.1	1.9	0.0	0.0	0.0	100.0
AM Times	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
AM Peaks	23	0	0	0	0	23
PM Times	2:30 PM	2:45 PM	2:30 PM	2:30 PM	2:30 PM	2:30 PM
PM Peaks	17	1	0	0	0	17



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Scoville Avenue with Public Alley
Site Code:
Start Date: 05/15/2018
Page No: 1

Turning Movement Data

Start Time	Public Alley Eastbound					Westbound Approach					Scoville Avenue Northbound					Scoville Avenue Southbound					Int. Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
7:00 AM	0	0	0	1	5	1	0	0	0	0	0	0	0	0	11	0	3	11	0	0	13	0	0	13	25
7:15 AM	0	0	0	4	12	4	0	0	0	0	0	0	0	0	10	0	11	10	0	0	17	0	0	17	31
7:30 AM	0	2	0	3	26	5	0	0	0	1	0	1	0	0	32	0	20	32	0	0	21	0	3	21	59
7:45 AM	0	2	0	12	21	14	0	0	0	0	0	0	0	0	45	0	17	45	0	0	26	1	1	27	86
Hourly Total	0	4	0	20	64	24	0	0	0	1	0	1	0	0	98	0	51	98	0	0	77	1	4	78	201
8:00 AM	0	0	0	0	3	0	0	0	0	1	0	1	0	0	8	0	0	8	0	2	13	0	1	15	24
8:15 AM	0	2	0	2	3	4	0	0	0	0	0	0	0	0	8	0	1	8	1	0	8	0	4	9	21
8:30 AM	0	0	0	1	1	1	0	0	0	0	0	0	0	0	12	0	1	12	0	0	10	1	0	11	24
8:45 AM	0	0	0	0	1	0	0	1	0	0	0	1	0	0	13	0	1	13	0	0	14	0	0	14	28
Hourly Total	0	2	0	3	8	5	0	1	0	1	0	2	0	0	41	0	3	41	1	2	45	1	5	49	97
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:30 PM	0	0	0	2	10	2	0	0	0	0	2	0	0	1	10	0	1	11	0	0	23	0	2	23	36
2:45 PM	0	0	0	4	6	4	0	0	0	0	1	0	0	0	17	0	5	17	0	0	15	0	1	15	36
Hourly Total	0	0	0	6	16	6	0	0	0	3	0	0	0	1	27	0	6	28	0	0	38	0	3	38	72
3:00 PM	0	0	0	1	23	1	0	0	0	0	1	0	0	0	13	0	9	13	0	0	21	0	2	21	35
3:15 PM	0	6	0	6	42	12	0	1	0	0	5	1	0	0	23	1	6	24	0	0	31	1	4	32	69
3:30 PM	0	0	0	6	6	6	0	0	0	1	1	1	0	0	18	0	4	18	0	0	15	0	3	15	40
3:45 PM	0	1	0	1	7	2	0	0	0	0	0	0	0	0	22	0	2	22	0	0	15	0	1	15	39
Hourly Total	0	7	0	14	78	21	0	1	0	1	7	2	0	0	76	1	21	77	0	0	82	1	10	83	183
4:00 PM	0	1	0	4	2	5	0	0	0	0	0	0	0	1	21	0	4	22	0	0	18	0	1	18	45
4:15 PM	0	1	0	1	9	2	0	0	0	0	0	0	0	0	24	0	0	24	0	0	10	0	0	10	36
4:30 PM	0	1	0	2	10	3	0	0	0	0	0	0	0	0	17	0	5	17	0	0	17	0	0	17	37
4:45 PM	0	1	0	2	9	3	0	0	0	0	2	0	0	1	20	0	1	21	0	0	16	0	2	16	40
Hourly Total	0	4	0	9	30	13	0	0	0	0	2	0	0	2	82	0	10	84	0	0	61	0	3	61	158
5:00 PM	0	1	0	2	4	3	0	0	0	0	0	0	0	0	25	0	0	25	0	0	17	0	0	17	45
5:15 PM	0	0	0	1	4	1	0	0	0	0	0	0	0	0	17	0	1	17	0	0	12	0	0	12	30
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	19	0	0	19	0	0	12	0	0	12	31
5:45 PM	0	0	0	2	2	2	0	0	0	0	0	0	0	0	23	0	0	23	0	0	21	0	1	21	46
Hourly Total	0	1	0	5	11	6	0	0	0	0	0	0	0	0	84	0	1	84	0	0	62	0	1	62	152
Grand Total	0	18	0	57	207	75	0	2	0	3	12	5	0	3	408	1	92	412	1	2	365	3	26	371	863
Approach %	0.0	24.0	0.0	76.0	-	-	0.0	40.0	0.0	60.0	-	-	0.0	0.7	99.0	0.2	-	-	0.3	0.5	98.4	0.8	-	-	-
Total %	0.0	2.1	0.0	6.6	-	8.7	0.0	0.2	0.0	0.3	-	0.6	0.0	0.3	47.3	0.1	-	47.7	0.1	0.2	42.3	0.3	-	43.0	-
Lights	0	18	0	55	-	73	0	2	0	3	-	5	0	3	374	1	-	378	1	2	329	2	-	334	790
% Lights	-	100.0	-	96.5	-	97.3	-	100.0	-	100.0	-	100.0	-	100.0	91.7	100.0	-	91.7	100.0	100.0	90.1	66.7	-	90.0	91.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	6	0	-	6	6
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	1.6	0.0	-	1.6	0.7
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	1	0	-	1	2



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: Scoville Avenue with Public Alley
Site Code:
Start Date: 05/15/2018
Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Public Alley Eastbound					Westbound Approach Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound										
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total	
7:00 AM	0	0	0	1	5	1	0	0	0	0	0	0	0	0	0	0	0	3	11	0	0	13	0	0	13	25
7:15 AM	0	0	0	4	12	4	0	0	0	0	0	0	0	0	10	0	11	10	0	0	17	0	0	17	31	
7:30 AM	0	2	0	3	26	5	0	0	1	0	1	0	0	32	0	20	32	32	0	0	21	0	3	21	59	
7:45 AM	0	2	0	12	21	14	0	0	0	0	0	0	0	45	0	17	45	45	0	0	26	1	1	27	86	
Total	0	4	0	20	64	24	0	0	1	0	1	0	0	98	0	51	98	98	0	0	77	1	4	78	201	
Approach %	0.0	16.7	0.0	83.3	-	-	0.0	0.0	0.0	100.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	98.7	1.3	-	-	-	-
Total %	0.0	2.0	0.0	10.0	-	11.9	0.0	0.0	0.0	0.5	-	0.5	0.0	0.0	48.8	0.0	-	48.8	0.0	0.0	36.3	0.5	-	38.8	-	
PHF	0.000	0.500	0.000	0.417	-	0.429	0.000	0.000	0.000	0.250	-	0.250	0.000	0.000	0.544	0.000	-	0.544	0.000	0.000	0.740	0.250	-	0.722	0.584	
Lights	0	4	0	20	-	24	0	0	0	1	-	1	0	0	71	0	-	71	0	0	69	1	-	70	166	
% Lights	-	100.0	-	100.0	-	100.0	-	-	-	100.0	-	-	-	-	72.4	-	-	72.4	-	-	89.6	100.0	-	-	89.7	82.6
Buses	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	4	0	-	4	4	
% Buses	-	0.0	-	0.0	-	0.0	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	5.2	0.0	-	5.1	2.0	
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	-	0	0	
% Single-Unit Trucks	-	0.0	-	0.0	-	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	1	0	-	1	1	
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	1.3	0.0	-	1.3	0.5	
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	27	0	-	27	0	0	3	0	-	3	30	
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	-	0.0	-	0.0	-	0.0	-	27.6	-	-	27.6	-	-	3.9	0.0	-	3.8	14.9	
Pedestrians	-	-	-	-	64	-	-	-	-	0	-	-	-	-	-	-	-	51	-	-	-	-	-	4	-	
% Pedestrians	-	-	-	-	100.0	-	-	-	-	0	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	



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Count Name: Scoville Avenue with Public Alley
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Start Date: 05/15/2018
Page No.: 4

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Public Alley Eastbound					Westbound Approach Westbound					Scoville Avenue Northbound					Scoville Avenue Southbound										
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total	
3:00 PM	0	0	0	1	23	1	0	0	0	0	1	0	0	0	13	0	0	9	13	0	0	21	0	2	21	35
3:15 PM	0	6	0	6	42	12	0	1	0	0	5	1	0	0	23	1	6	24	0	0	31	1	4	32	69	
3:30 PM	0	0	0	6	6	6	0	0	0	1	1	1	0	0	18	0	4	18	0	0	15	0	3	15	40	
3:45 PM	0	1	0	1	7	2	0	0	0	0	0	0	0	0	22	0	2	22	0	0	15	0	1	15	39	
Total	0	7	0	14	78	21	0	1	0	1	7	2	0	0	76	1	21	77	0	0	82	1	10	83	183	
Approach %	0.0	33.3	0.0	66.7	-	-	0.0	50.0	0.0	50.0	-	-	0.0	0.0	98.7	1.3	-	-	0.0	0.0	98.8	1.2	-	-	-	-
Total %	0.0	3.8	0.0	7.7	-	11.5	0.0	0.5	0.0	0.5	-	1.1	0.0	0.0	41.5	0.5	-	42.1	0.0	0.0	44.8	0.5	-	45.4	-	
PHF	0.000	0.292	0.000	0.583	-	0.438	0.000	0.250	0.000	0.250	-	0.500	0.000	0.000	0.826	0.250	-	0.802	0.000	0.000	0.661	0.250	-	0.648	0.663	
Lights	0	7	0	14	-	21	0	1	0	1	-	2	0	0	75	1	-	76	0	0	64	1	-	65	164	
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	-	98.7	100.0	-	98.7	-	-	78.0	100.0	-	78.3	89.6	
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1	
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	1.2	0.0	-	1.2	0.5	
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	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	
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	-	-	1	0	0	17	0	-	17	18	
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.3	0.0	-	1.3	-	-	20.7	0.0	-	20.5	9.8	
Pedestrians	-	-	-	-	78	-	-	-	-	-	7	-	-	-	-	-	-	21	-	-	-	-	-	10	-	
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	



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Count Name: Scoville Avenue with Public Alley
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Start Date: 05/15/2018
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Turning Movement Peak Hour Data (5:00 PM)

Start Time	Public Alley Eastbound						Westbound Approach Westbound						Scoville Avenue Northbound						Scoville Avenue Southbound													
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total	
5:00 PM	0	1	0	2	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	17	45
5:15 PM	0	0	0	1	4	1	0	0	0	0	0	0	0	0	17	0	0	1	17	0	0	12	0	0	0	0	12	0	0	12	30	
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	19	0	0	19	0	0	12	0	0	0	0	12	0	0	12	31		
5:45 PM	0	0	0	2	2	2	0	0	0	0	0	0	0	0	23	0	0	23	0	0	21	0	0	1	21	0	0	21	0	21	46	
Total	0	1	0	5	11	6	0	0	0	0	0	0	0	0	84	0	1	84	0	0	62	0	1	62	0	0	62	0	62	152		
Approach %	0.0	16.7	0.0	83.3	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-	
Total %	0.0	0.7	0.0	3.3	-	3.9	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	55.3	0.0	-	55.3	0.0	0.0	40.8	0.0	-	-	0.0	0.0	40.8	0.0	-	40.8	-	
PHF	0.000	0.250	0.000	0.625	-	0.500	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.840	0.000	-	0.840	0.000	0.000	0.738	0.000	-	-	0.000	0.000	0.738	0.000	-	0.738	0.826	
Lights	0	1	0	4	-	5	0	0	0	0	-	0	0	0	84	0	-	84	0	0	60	0	-	-	0	0	60	0	-	60	149	
% Lights	-	100.0	-	80.0	-	83.3	-	-	-	-	-	-	-	-	100.0	-	-	100.0	-	-	96.8	-	-	-	-	96.8	-	-	96.8	98.0		
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Buses	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	0.0	-	-	-	-	0.0	-	-	0.0	0.0	-	
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Single-Unit Trucks	-	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	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	-	
Bicycles on Road	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	0	0	0	0	0	2	0	-	-	0	0	2	0	-	2	3	
% Bicycles on Road	-	0.0	-	20.0	-	16.7	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	3.2	-	-	-	-	3.2	-	-	3.2	2.0		
Pedestrians	-	-	-	-	11	-	-	-	-	0	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
% Pedestrians	-	-	-	-	100.0	-	-	-	-	0	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis – Existing Conditions

Lanes, Volumes, Timings
1: East Avenue & Madison Street

07/06/2018

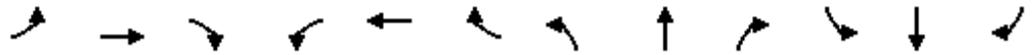
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	892	22	32	816	49	54	238	45	39	119	92
Future Volume (vph)	175	892	22	32	816	49	54	238	45	39	119	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	105		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	145			140			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	0.99			0.98			0.98	
Frt		0.996			0.992			0.982			0.950	
Flt Protected	0.950			0.950				0.992			0.992	
Satd. Flow (prot)	1752	3294	0	1805	3278	0	0	1581	0	0	1765	0
Flt Permitted	0.123			0.181				0.891			0.879	
Satd. Flow (perm)	224	3294	0	343	3278	0	0	1417	0	0	1557	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			7			10			38	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	59		13	13		59	17		48	48		17
Confl. Bikes (#/hr)									31			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	0%	0%	2%	8%	4%	1%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	1	0	0	2	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	1063	0	37	1006	0	0	392	0	0	290	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0		6.5	34.0		23.0	23.0		23.0	23.0	
Total Split (s)	15.0	37.0		12.0	34.0		41.0	41.0		41.0	41.0	
Total Split (%)	16.7%	41.1%		13.3%	37.8%		45.6%	45.6%		45.6%	45.6%	
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	49.6	40.8		42.4	33.4			30.9			30.9	
Actuated g/C Ratio	0.55	0.45		0.47	0.37			0.34			0.34	

18-100 - Fenwick High School Parking Garage
Existing AM Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

07/06/2018

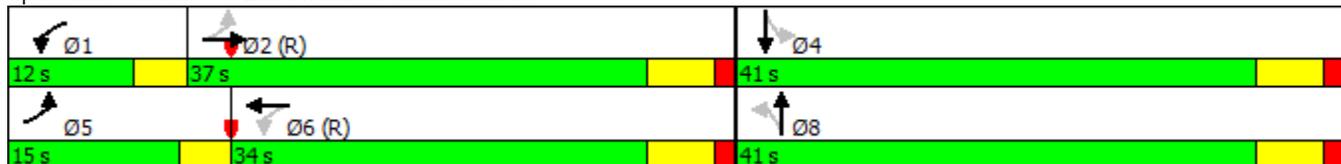


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.69	0.71		0.14	0.82			0.80			0.52	
Control Delay	27.3	25.9		12.4	34.5			38.2			23.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	27.3	25.9		12.4	34.5			38.2			23.1	
LOS	C	C		B	C			D			C	
Approach Delay		26.1			33.7			38.2			23.1	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	58	277		10	281			187			108	
Queue Length 95th (ft)	120	#392		24	#400			268			165	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	100			105								
Base Capacity (vph)	318	1494		307	1222			557			628	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.64	0.71		0.12	0.82			0.70			0.46	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 40 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 30.1
 Intersection LOS: C
 Intersection Capacity Utilization 72.6%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

07/06/2018



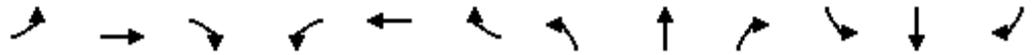
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	409	109	33	289	13	99	198	106	13	187	29
Future Volume (vph)	26	409	109	33	289	13	99	198	106	13	187	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.94			0.99	
Frt		0.973			0.995			0.964			0.983	
Flt Protected		0.998			0.995			0.988			0.997	
Satd. Flow (prot)	0	1565	0	0	1536	0	0	1430	0	0	1590	0
Flt Permitted		0.967			0.861			0.844			0.963	
Satd. Flow (perm)	0	1516	0	0	1328	0	0	1215	0	0	1530	0
Right Turn on Red			Yes				Yes			Yes		Yes
Satd. Flow (RTOR)		23			4			39			16	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	13		18	18		13	21		92	92		21
Confl. Bikes (#/hr)			1						29			1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	1%	0%	0%	1%	0%	1%	0%	5%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	680	0	0	418	0	0	505	0	0	286	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%		55.0%	55.0%		55.0%	55.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		21.1			21.1			25.1			25.1	
Actuated g/C Ratio		0.36			0.36			0.43			0.43	

18-100 - Fenwick High School Parking Garage
Existing AM Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

07/06/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		1.21			0.87			0.92				0.43
Control Delay		132.3			39.9			41.3				13.0
Queue Delay		0.0			0.0			0.0				0.0
Total Delay		132.3			39.9			41.3				13.0
LOS		F			D			D				B
Approach Delay		132.3			39.9			41.3				13.0
Approach LOS		F			D			D				B
Queue Length 50th (ft)		-315			138			147				62
Queue Length 95th (ft)		#419			#242			#264				97
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)												
Base Capacity (vph)		563			483			586				720
Starvation Cap Reductn		0			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		1.21			0.87			0.86				0.40

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 58.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 69.5
 Intersection LOS: E
 Intersection Capacity Utilization 86.9%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 2010 TWSC
 3: Scoville Avenue & Madison Street

07/06/2018

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↗	
Traffic Vol, veh/h	962	14	20	870	4	48
Future Vol, veh/h	962	14	20	870	4	48
Conflicting Peds, #/hr	0	4	4	0	17	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	7	0	3	0	2
Mvmt Flow	1093	16	23	989	5	55

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1113	0	1662
Stage 1	-	-	-	-	1105
Stage 2	-	-	-	-	557
Critical Hdwy	-	-	4.1	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	635	-	90
Stage 1	-	-	-	-	283
Stage 2	-	-	-	-	543
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	633	-	85
Mov Cap-2 Maneuver	-	-	-	-	201
Stage 1	-	-	-	-	282
Stage 2	-	-	-	-	515

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	424	-	-	633	-
HCM Lane V/C Ratio	0.139	-	-	0.036	-
HCM Control Delay (s)	14.9	-	-	10.9	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

HCM 2010 TWSC
4: Madison Street & Scoville Avenue

07/06/2018

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	53	966	833	43	16	61
Future Vol, veh/h	53	966	833	43	16	61
Conflicting Peds, #/hr	11	0	0	11	3	17
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	2	2	7	13	11
Mvmt Flow	60	1098	947	49	18	69

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1006	0	-	0	1654 526
Stage 1	-	-	-	-	982 -
Stage 2	-	-	-	-	672 -
Critical Hdwy	4.1	-	-	-	7.06 7.12
Critical Hdwy Stg 1	-	-	-	-	6.06 -
Critical Hdwy Stg 2	-	-	-	-	6.06 -
Follow-up Hdwy	2.2	-	-	-	3.63 3.41
Pot Cap-1 Maneuver	697	-	-	-	80 474
Stage 1	-	-	-	-	299 -
Stage 2	-	-	-	-	441 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	686	-	-	-	71 461
Mov Cap-2 Maneuver	-	-	-	-	186 -
Stage 1	-	-	-	-	296 -
Stage 2	-	-	-	-	398 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	686	-	-	-	353
HCM Lane V/C Ratio	0.088	-	-	-	0.248
HCM Control Delay (s)	10.8	-	-	-	18.5
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1

HCM 2010 TWSC
 5: Scoville Avenue & Washington Boulevard

07/06/2018

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	6	466	42	30	322	1	5	0	69	1	1	8
Future Vol, veh/h	6	466	42	30	322	1	5	0	69	1	1	8
Conflicting Peds, #/hr	4	0	22	22	0	4	20	0	11	11	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	14	1	12	0	1	0	0	0	0	0	0	0
Mvmt Flow	8	583	53	38	403	1	6	0	86	1	1	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	408	0	0	657	0	0	1150	1129	642	1160	1154	427
Stage 1	-	-	-	-	-	-	646	646	-	482	482	-
Stage 2	-	-	-	-	-	-	504	483	-	678	672	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.326	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1089	-	-	940	-	-	177	206	478	174	199	632
Stage 1	-	-	-	-	-	-	464	470	-	569	557	-
Stage 2	-	-	-	-	-	-	554	556	-	445	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1068	-	-	930	-	-	158	188	463	133	182	618
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	188	-	133	182	-
Stage 1	-	-	-	-	-	-	449	455	-	560	525	-
Stage 2	-	-	-	-	-	-	505	525	-	354	443	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			16.3			14.7		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1068	-	-	930	-	-	385
HCM Lane V/C Ratio	0.226	0.007	-	-	0.04	-	-	0.032
HCM Control Delay (s)	16.3	8.4	0	-	9	0	-	14.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.1

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	2	1	6	4	0	0	0	243	197	112	238	3
Future Vol, veh/h	2	1	6	4	0	0	0	243	197	112	238	3
Conflicting Peds, #/hr	109	0	0	0	0	109	0	0	90	90	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	1	0	1	0
Mvmt Flow	3	1	8	5	0	0	0	316	256	145	309	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1155	1263	311	1140	1138	643	313	0	0	661	0	0
Stage 1	602	602	-	534	534	-	-	-	-	-	-	-
Stage 2	553	661	-	606	604	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	175	171	734	180	203	477	1259	-	-	937	-	-
Stage 1	490	492	-	534	528	-	-	-	-	-	-	-
Stage 2	521	463	-	487	491	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	132	124	734	136	147	391	1259	-	-	840	-	-
Mov Cap-2 Maneuver	132	124	-	136	147	-	-	-	-	-	-	-
Stage 1	490	389	-	488	483	-	-	-	-	-	-	-
Stage 2	467	423	-	380	388	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18.1		32.5		0		3.2	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	287	136	840	-
HCM Lane V/C Ratio	-	-	-	0.041	0.038	0.173	-
HCM Control Delay (s)	0	-	-	18.1	32.5	10.2	0
HCM Lane LOS	A	-	-	C	D	B	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.6	-

HCM 2010 TWSC
7: East Avenue & Fenwick Outbound Only Access

07/06/2018

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑			↑
Traffic Vol, veh/h	44	159	245	0	0	323
Future Vol, veh/h	44	159	245	0	0	323
Conflicting Peds, #/hr	1	1	0	24	24	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	76	76	76	76	76	76
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	58	209	322	0	0	425

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	748	323	0	-	-	-
Stage 1	322	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.4	6.21	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	-	-	-	-
Pot Cap-1 Maneuver	383	720	-	0	0	-
Stage 1	739	-	-	0	0	-
Stage 2	663	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	383	719	-	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 604	-
HCM Lane V/C Ratio	- 0.442	-
HCM Control Delay (s)	- 15.6	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 2.3	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	0	0	0	0	440	22	9	239	0
Future Vol, veh/h	0	0	11	0	0	0	0	440	22	9	239	0
Conflicting Peds, #/hr	109	0	0	0	0	109	0	0	91	91	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	1	1	0
Mvmt Flow	0	0	14	0	0	0	0	571	29	12	310	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1029	1025	310	1018	1011	786	310	0	0	691	0	0
Stage 1	334	334	-	677	677	-	-	-	-	-	-	-
Stage 2	695	691	-	341	334	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	214	237	735	218	241	395	1262	-	-	908	-	-
Stage 1	684	647	-	446	455	-	-	-	-	-	-	-
Stage 2	436	449	-	678	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	189	213	735	193	216	323	1262	-	-	814	-	-
Mov Cap-2 Maneuver	189	213	-	193	216	-	-	-	-	-	-	-
Stage 1	684	635	-	407	416	-	-	-	-	-	-	-
Stage 2	391	410	-	653	635	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	0	0	0.3
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1262	-	-	735	-	814	-
HCM Lane V/C Ratio	-	-	-	0.019	-	0.014	-
HCM Control Delay (s)	0	-	-	10	0	9.5	0
HCM Lane LOS	A	-	-	B	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-

Intersection

Int Delay, s/veh 1.4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations	↘↗			↑	↑	
Traffic Vol, veh/h	4	20	0	71	74	0
Future Vol, veh/h	4	20	0	71	74	0
Conflicting Peds, #/hr	4	51	64	0	0	64
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	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	7	34	0	122	128	0

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	254	179	-	0	-	0
Stage 1	128	-	-	-	-	-
Stage 2	126	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	739	869	0	-	-	0
Stage 1	903	-	0	-	-	0
Stage 2	905	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	739	827	-	-	-	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	905	-	-	-	-	-

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)	-	811	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	9.7	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-

HCM 2010 TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

07/06/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	976	874	0	0	23
Future Vol, veh/h	0	976	874	0	0	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	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1135	1016	0	0	27

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	515
HCM Lane V/C Ratio	-	-	0.052
HCM Control Delay (s)	-	-	12.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Lanes, Volumes, Timings
1: East Avenue & Madison Street

07/06/2018

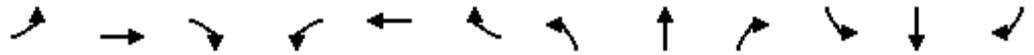
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	686	35	40	850	38	67	196	33	48	221	108
Future Volume (vph)	85	686	35	40	850	38	67	196	33	48	221	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	105		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	145			140			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.98	1.00			0.99			0.98	
Frt		0.993			0.994			0.985			0.961	
Flt Protected	0.950			0.950				0.989			0.994	
Satd. Flow (prot)	1719	3246	0	1736	3310	0	0	1583	0	0	1760	0
Flt Permitted	0.197			0.304				0.743			0.909	
Satd. Flow (perm)	354	3246	0	546	3310	0	0	1186	0	0	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			6			8			25	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	23		38	38		23	18		36	36		18
Confl. Bikes (#/hr)			1			4			2			11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	3%	0%	4%	2%	0%	2%	2%	3%	0%	1%	4%
Bus Blockages (#/hr)	0	0	2	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	767	0	43	944	0	0	315	0	0	401	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0		6.5	35.0		23.0	23.0		23.0	23.0	
Total Split (s)	10.0	41.0		10.0	41.0		39.0	39.0		39.0	39.0	
Total Split (%)	11.1%	45.6%		11.1%	45.6%		43.3%	43.3%		43.3%	43.3%	
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	49.8	43.1		48.4	40.8			28.9			28.9	
Actuated g/C Ratio	0.55	0.48		0.54	0.45			0.32			0.32	

18-100 - Fenwick High School Parking Garage
Existing Afternoon Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
1: East Avenue & Madison Street

07/06/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.30	0.49		0.11	0.63			0.82				0.76
Control Delay	12.8	19.2		10.7	22.7			44.6				34.8
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	12.8	19.2		10.7	22.7			44.6				34.8
LOS	B	B		B	C			D				C
Approach Delay		18.5			22.2			44.6				34.8
Approach LOS		B			C			D				C
Queue Length 50th (ft)	23	170		11	230			154				184
Queue Length 95th (ft)	48	238		27	308			#272				280
Internal Link Dist (ft)		487			147			135				43
Turn Bay Length (ft)	100			105								
Base Capacity (vph)	298	1558		380	1505			439				603
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.30	0.49		0.11	0.63			0.72				0.67

Intersection Summary

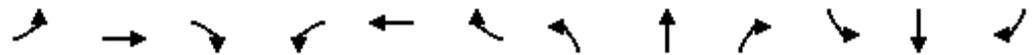
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 25.7
 Intersection Capacity Utilization 69.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

07/06/2018



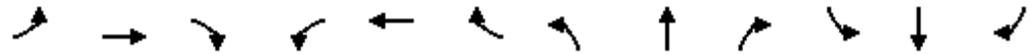
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	300	59	33	398	14	73	224	51	15	263	24
Future Volume (vph)	14	300	59	33	398	14	73	224	51	15	263	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.979			0.996			0.980			0.989	
Flt Protected		0.998			0.996			0.990			0.998	
Satd. Flow (prot)	0	1559	0	0	1535	0	0	1484	0	0	1598	0
Flt Permitted		0.974			0.947			0.867			0.971	
Satd. Flow (perm)	0	1520	0	0	1456	0	0	1293	0	0	1548	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			3			20			10	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	27		44	44		27	27		107	107		27
Confl. Bikes (#/hr)									2			12
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	1%	7%	3%	1%	6%	7%	1%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	0	488	0	0	382	0	0	331	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		31.0	31.0		31.0	31.0	
Total Split (s)	25.0	25.0		25.0	25.0		31.0	31.0		31.0	31.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		19.1			19.1			19.4			19.4	
Actuated g/C Ratio		0.38			0.38			0.38			0.38	

18-100 - Fenwick High School Parking Garage
Existing Afternoon Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

07/06/2018

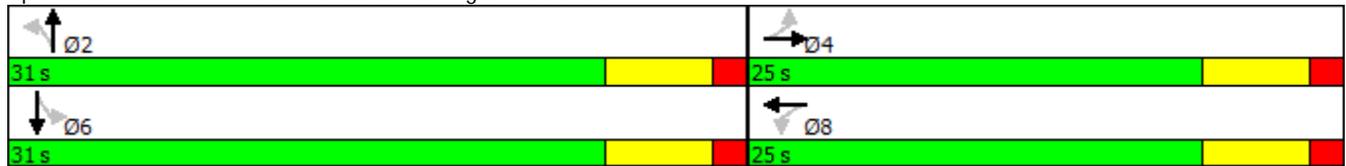


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.70			0.88			0.75			0.55	
Control Delay		22.9			38.8			23.1			15.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.9			38.8			23.1			15.5	
LOS		C			D			C			B	
Approach Delay		22.9			38.8			23.1			15.5	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)		92			127			88			70	
Queue Length 95th (ft)		#247			#332			173			130	
Internal Link Dist (ft)		477			367			170			183	
Turn Bay Length (ft)												
Base Capacity (vph)		586			552			653			775	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.70			0.88			0.58			0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 56
 Actuated Cycle Length: 50.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 26.3
 Intersection LOS: C
 Intersection Capacity Utilization 86.4%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 2010 TWSC
 3: Scoville Avenue & Madison Street

07/06/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	757	10	15	905	7	12
Future Vol, veh/h	757	10	15	905	7	12
Conflicting Peds, #/hr	0	54	54	0	1	42
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	20	0	1	14	0
Mvmt Flow	789	10	16	943	7	13

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	853	0	1352
Stage 1	-	-	-	-	848
Stage 2	-	-	-	-	504
Critical Hdwy	-	-	4.1	-	7.08
Critical Hdwy Stg 1	-	-	-	-	6.08
Critical Hdwy Stg 2	-	-	-	-	6.08
Follow-up Hdwy	-	-	2.2	-	3.64
Pot Cap-1 Maneuver	-	-	795	-	127
Stage 1	-	-	-	-	352
Stage 2	-	-	-	-	539
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	763	-	118
Mov Cap-2 Maneuver	-	-	-	-	237
Stage 1	-	-	-	-	334
Stage 2	-	-	-	-	527

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	-	-	763	-
HCM Lane V/C Ratio	0.057	-	-	0.02	-
HCM Control Delay (s)	16	-	-	9.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 2010 TWSC
 4: Madison Street & Scoville Avenue

07/06/2018

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	713	822	65	25	77
Future Vol, veh/h	37	713	822	65	25	77
Conflicting Peds, #/hr	0	0	0	0	42	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	0	4	0
Mvmt Flow	39	743	856	68	26	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	924	0	-	0	1380
Stage 1	-	-	-	-	890
Stage 2	-	-	-	-	490
Critical Hdwy	4.1	-	-	-	6.88
Critical Hdwy Stg 1	-	-	-	-	5.88
Critical Hdwy Stg 2	-	-	-	-	5.88
Follow-up Hdwy	2.2	-	-	-	3.54
Pot Cap-1 Maneuver	748	-	-	-	133
Stage 1	-	-	-	-	357
Stage 2	-	-	-	-	576
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	747	-	-	-	126
Mov Cap-2 Maneuver	-	-	-	-	251
Stage 1	-	-	-	-	357
Stage 2	-	-	-	-	546

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	747	-	-	-	426
HCM Lane V/C Ratio	0.052	-	-	-	0.249
HCM Control Delay (s)	10.1	-	-	-	16.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1

HCM 2010 TWSC
 5: Scoville Avenue & Washington Boulevard

07/06/2018

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	2	345	28	29	418	0	17	0	70	0	0	0
Future Vol, veh/h	2	345	28	29	418	0	17	0	70	0	0	0
Conflicting Peds, #/hr	22	0	36	36	0	22	48	0	26	26	0	48
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	3	1	0	0	0	0	0	0	0
Mvmt Flow	2	371	30	31	449	0	18	0	75	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	471	0	0	437	0	0	986	960	448	988	975	519
Stage 1	-	-	-	-	-	-	426	426	-	534	534	-
Stage 2	-	-	-	-	-	-	560	534	-	454	441	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1101	-	-	1117	-	-	229	259	615	228	253	561
Stage 1	-	-	-	-	-	-	610	589	-	534	528	-
Stage 2	-	-	-	-	-	-	516	528	-	589	580	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1051	-	-	1089	-	-	205	235	579	184	230	524
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	235	-	184	230	-
Stage 1	-	-	-	-	-	-	588	568	-	522	497	-
Stage 2	-	-	-	-	-	-	474	497	-	499	559	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			15.8			0		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	427	1051	-	-	1089	-	-	-
HCM Lane V/C Ratio	0.219	0.002	-	-	0.029	-	-	-
HCM Control Delay (s)	15.8	8.4	0	-	8.4	0	-	0
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	3	13	0	2	0	252	61	40	350	3
Future Vol, veh/h	1	0	3	13	0	2	0	252	61	40	350	3
Conflicting Peds, #/hr	54	0	1	1	0	54	0	0	43	43	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	0	1	0
Mvmt Flow	1	0	4	16	0	2	0	311	75	49	432	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	937	962	435	928	927	446	436	0	0	429	0	0
Stage 1	533	533	-	392	392	-	-	-	-	-	-	-
Stage 2	404	429	-	536	535	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	247	258	625	250	270	617	1134	-	-	1141	-	-
Stage 1	534	528	-	637	610	-	-	-	-	-	-	-
Stage 2	627	587	-	532	527	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	223	233	624	227	243	561	1133	-	-	1082	-	-
Mov Cap-2 Maneuver	223	233	-	227	243	-	-	-	-	-	-	-
Stage 1	534	496	-	611	585	-	-	-	-	-	-	-
Stage 2	592	563	-	497	495	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB		
HCM Control Delay, s	13.5		20.8		0		0.9		
HCM LOS	B		C						

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1133	-	-	430	247	1082	-
HCM Lane V/C Ratio	-	-	-	0.011	0.075	0.046	-
HCM Control Delay (s)	0	-	-	13.5	20.8	8.5	0
HCM Lane LOS	A	-	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-

HCM 2010 TWSC
 7: East Avenue & Fenwick Outbound Only Access

07/06/2018

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑			↑
Traffic Vol, veh/h	34	75	265	0	0	363
Future Vol, veh/h	34	75	265	0	0	363
Conflicting Peds, #/hr	11	11	0	61	61	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	85	85	85	85	85	85
Heavy Vehicles, %	6	5	2	0	0	1
Mvmt Flow	40	88	312	0	0	427

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	750	323	0	-	-	-
Stage 1	312	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	-	-
Pot Cap-1 Maneuver	373	711	-	0	0	-
Stage 1	733	-	-	0	0	-
Stage 2	642	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	369	704	-	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	635	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 549	-
HCM Lane V/C Ratio	- 0.234	-
HCM Control Delay (s)	- 13.5	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.9	-

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	1	0	12	12	0	10	3	302	14	6	353	7
Future Vol, veh/h	1	0	12	12	0	10	3	302	14	6	353	7
Conflicting Peds, #/hr	54	0	1	1	0	54	0	0	45	45	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	8	0	0	0	1	7	0	1	0
Mvmt Flow	1	0	15	15	0	12	4	373	17	7	436	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	904	898	441	897	893	480	444	0	0	435	0	0
Stage 1	455	455	-	434	434	-	-	-	-	-	-	-
Stage 2	449	443	-	463	459	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	260	281	621	254	283	590	1127	-	-	1135	-	-
Stage 1	589	572	-	589	585	-	-	-	-	-	-	-
Stage 2	593	579	-	568	570	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	238	265	620	235	267	536	1126	-	-	1077	-	-
Mov Cap-2 Maneuver	238	265	-	235	267	-	-	-	-	-	-	-
Stage 1	586	567	-	561	557	-	-	-	-	-	-	-
Stage 2	547	551	-	549	565	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	11.7		17.5		0.1		0.1			
HCM LOS	B		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1126	-	-	552	316	1077	-
HCM Lane V/C Ratio	0.003	-	-	0.029	0.086	0.007	-
HCM Control Delay (s)	8.2	0	-	11.7	17.5	8.4	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗			↑	↑	
Traffic Vol, veh/h	7	14	0	75	65	0
Future Vol, veh/h	7	14	0	75	65	0
Conflicting Peds, #/hr	10	21	78	0	0	78
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	66	66	66	66	66	66
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	11	21	0	114	98	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	222	119	-	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	771	938	0	-	-	0
Stage 1	931	-	0	-	-	0
Stage 2	907	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	771	919	-	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 864	-
HCM Lane V/C Ratio	- 0.037	-
HCM Control Delay (s)	- 9.3	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.1	-

HCM 2010 TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

07/06/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	767	912	0	0	16
Future Vol, veh/h	0	767	912	0	0	16
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	94	94	94	94	94	94
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	0	816	970	0	0	17

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	533
HCM Lane V/C Ratio	-	-	0.032
HCM Control Delay (s)	-	-	12
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Lanes, Volumes, Timings
1: East Avenue & Madison Street

07/06/2018

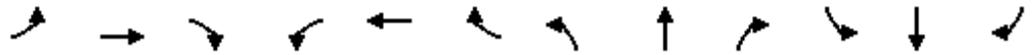
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	863	29	41	877	30	45	230	35	54	255	86
Future Volume (vph)	55	863	29	41	877	30	45	230	35	54	255	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		0	105		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	145			140			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.995			0.995			0.985			0.971	
Flt Protected	0.950			0.950				0.993			0.993	
Satd. Flow (prot)	1770	3321	0	1805	3283	0	0	1615	0	0	1763	0
Flt Permitted	0.211			0.238				0.865			0.895	
Satd. Flow (perm)	392	3321	0	449	3283	0	0	1405	0	0	1586	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4			8			18	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	10		20	20		10	13		21	21		13
Confl. Bikes (#/hr)						2			3			7
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	0%	0%	3%	3%	0%	1%	0%	2%	4%	1%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	901	0	41	916	0	0	312	0	0	400	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0		6.5	35.0		23.0	23.0		23.0	23.0	
Total Split (s)	10.0	41.0		10.0	41.0		39.0	39.0		39.0	39.0	
Total Split (%)	11.1%	45.6%		11.1%	45.6%		43.3%	43.3%		43.3%	43.3%	
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	49.6	43.1		48.7	41.1			28.9			28.9	
Actuated g/C Ratio	0.55	0.48		0.54	0.46			0.32			0.32	

18-100 - Fenwick High School Parking Garage
Existing PM Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

07/06/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.18	0.57		0.12	0.61			0.68			0.77	
Control Delay	11.3	20.5		10.8	22.2			33.5			36.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.3	20.5		10.8	22.2			33.5			36.3	
LOS	B	C		B	C			C			D	
Approach Delay		19.9			21.7			33.5			36.3	
Approach LOS		B			C			C			D	
Queue Length 50th (ft)	14	207		10	215			145			190	
Queue Length 95th (ft)	33	290		26	298			227			285	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	100			105								
Base Capacity (vph)	316	1593		341	1502			520			592	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.57		0.12	0.61			0.60			0.68	

Intersection Summary

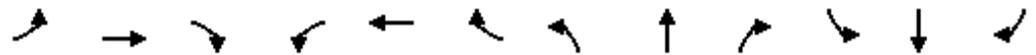
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	24.7
Intersection LOS:	C
Intersection Capacity Utilization:	70.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

07/06/2018



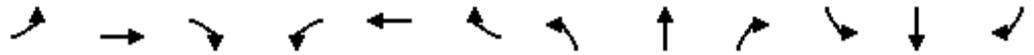
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	402	67	41	523	24	57	252	32	15	266	28
Future Volume (vph)	15	402	67	41	523	24	57	252	32	15	266	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.981			0.995			0.987			0.988	
Flt Protected		0.998			0.996			0.992			0.998	
Satd. Flow (prot)	0	1596	0	0	1537	0	0	1531	0	0	1607	0
Flt Permitted		0.975			0.938			0.889			0.972	
Satd. Flow (perm)	0	1559	0	0	1447	0	0	1368	0	0	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			4			10			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	11		11	11		11	20		28	28		20
Confl. Bikes (#/hr)			2						5			7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	1%	0%	4%	1%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	526	0	0	639	0	0	371	0	0	335	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (s)	32.0	32.0		32.0	32.0		30.0	30.0		30.0	30.0	
Total Split (%)	51.6%	51.6%		51.6%	51.6%		48.4%	48.4%		48.4%	48.4%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		26.1			26.1			19.8			19.8	
Actuated g/C Ratio		0.45			0.45			0.34			0.34	

18-100 - Fenwick High School Parking Garage
Existing PM Peak Hour

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

07/06/2018

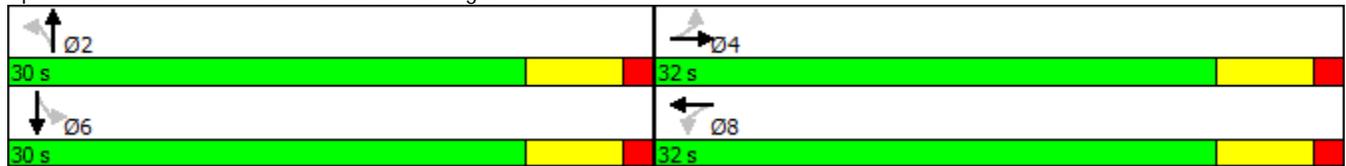


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.74			0.98			0.78				0.62
Control Delay		22.3			50.8			29.8				21.0
Queue Delay		0.0			0.0			0.0				0.0
Total Delay		22.3			50.8			29.8				21.0
LOS		C			D			C				C
Approach Delay		22.3			50.8			29.8				21.0
Approach LOS		C			D			C				C
Queue Length 50th (ft)		140			207			110				92
Queue Length 95th (ft)		#321			#454			#212				164
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)												
Base Capacity (vph)		711			654			575				656
Starvation Cap Reductn		0			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.74			0.98			0.65				0.51

Intersection Summary

Area Type: Other
 Cycle Length: 62
 Actuated Cycle Length: 57.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 33.3
 Intersection LOS: C
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 2010 TWSC
 3: Scoville Avenue & Madison Street

07/06/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	943	9	30	937	8	9
Future Vol, veh/h	943	9	30	937	8	9
Conflicting Peds, #/hr	0	12	12	0	0	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	1014	10	32	1008	9	10

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1036	0	1599
Stage 1	-	-	-	-	1031
Stage 2	-	-	-	-	568
Critical Hdwy	-	-	4.1	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	679	-	99
Stage 1	-	-	-	-	309
Stage 2	-	-	-	-	536
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	678	-	93
Mov Cap-2 Maneuver	-	-	-	-	213
Stage 1	-	-	-	-	305
Stage 2	-	-	-	-	511

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	-	-	678	-
HCM Lane V/C Ratio	0.06	-	-	0.048	-
HCM Control Delay (s)	17.6	-	-	10.6	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 2010 TWSC
 4: Madison Street & Scoville Avenue

07/06/2018

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	893	915	75	13	48
Future Vol, veh/h	56	893	915	75	13	48
Conflicting Peds, #/hr	15	0	0	15	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	1	2	0	8	0
Mvmt Flow	60	960	984	81	14	52

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1080	0	-	0	1642 547
Stage 1	-	-	-	-	1039 -
Stage 2	-	-	-	-	603 -
Critical Hdwy	4.24	-	-	-	6.96 6.9
Critical Hdwy Stg 1	-	-	-	-	5.96 -
Critical Hdwy Stg 2	-	-	-	-	5.96 -
Follow-up Hdwy	2.27	-	-	-	3.58 3.3
Pot Cap-1 Maneuver	613	-	-	-	85 486
Stage 1	-	-	-	-	289 -
Stage 2	-	-	-	-	493 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	613	-	-	-	75 479
Mov Cap-2 Maneuver	-	-	-	-	190 -
Stage 1	-	-	-	-	285 -
Stage 2	-	-	-	-	438 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	613	-	-	-	362
HCM Lane V/C Ratio	0.098	-	-	-	0.181
HCM Control Delay (s)	11.5	-	-	-	17.1
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7

HCM 2010 TWSC
 5: Scoville Avenue & Washington Boulevard

07/06/2018

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	9	419	22	50	562	2	19	0	58	1	1	8
Future Vol, veh/h	9	419	22	50	562	2	19	0	58	1	1	8
Conflicting Peds, #/hr	14	0	14	14	0	14	12	0	12	12	0	12
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0	0	0	0	0	0	0
Mvmt Flow	9	423	22	51	568	2	19	0	59	1	1	8

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	584	0	0	459	0	0	1153	1152	460	1178	1162	595
Stage 1	-	-	-	-	-	-	467	467	-	684	684	-
Stage 2	-	-	-	-	-	-	686	685	-	494	478	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1001	-	-	1107	-	-	176	199	605	169	197	508
Stage 1	-	-	-	-	-	-	580	565	-	442	452	-
Stage 2	-	-	-	-	-	-	441	451	-	561	559	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	990	-	-	1094	-	-	158	178	590	139	177	495
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	178	-	139	177	-
Stage 1	-	-	-	-	-	-	565	551	-	431	416	-
Stage 2	-	-	-	-	-	-	399	415	-	494	545	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	18.1	15.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	352	990	-	-	1094	-	-	345
HCM Lane V/C Ratio	0.221	0.009	-	-	0.046	-	-	0.029
HCM Control Delay (s)	18.1	8.7	0	-	8.4	0	-	15.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	3	12	1	1	1	297	19	15	366	1
Future Vol, veh/h	1	1	3	12	1	1	1	297	19	15	366	1
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	11	11	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	1	3	13	1	1	1	330	21	17	407	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	788	805	407	797	795	355	408	0	0	362	0	0
Stage 1	441	441	-	354	354	-	-	-	-	-	-	-
Stage 2	347	364	-	443	441	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	311	318	648	307	323	693	1162	-	-	1208	-	-
Stage 1	599	580	-	667	634	-	-	-	-	-	-	-
Stage 2	673	627	-	598	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	304	309	648	297	314	684	1162	-	-	1205	-	-
Mov Cap-2 Maneuver	304	309	-	297	314	-	-	-	-	-	-	-
Stage 1	598	570	-	659	627	-	-	-	-	-	-	-
Stage 2	668	620	-	583	570	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.1		17.2		0		0.3	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1162	-	-	448	311	1205	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.05	0.014	-
HCM Control Delay (s)	8.1	0	-	13.1	17.2	8	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-

HCM 2010 TWSC
7: East Avenue & Fenwick Outbound Only Access

07/06/2018

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑			↑
Traffic Vol, veh/h	12	33	304	0	0	366
Future Vol, veh/h	12	33	304	0	0	366
Conflicting Peds, #/hr	6	8	0	20	20	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	89	89	89	89	89	89
Heavy Vehicles, %	0	6	1	0	0	1
Mvmt Flow	13	37	342	0	0	411

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	759	350	0	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	-	-
Pot Cap-1 Maneuver	377	684	-	0	0	-
Stage 1	724	-	-	0	0	-
Stage 2	669	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	375	679	-	-	-	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 558	-
HCM Lane V/C Ratio	- 0.091	-
HCM Control Delay (s)	- 12.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	10	6	0	1	2	311	2	1	379	1
Future Vol, veh/h	5	0	10	6	0	1	2	311	2	1	379	1
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	12	12	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	6	0	11	7	0	1	2	346	2	1	421	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	779	788	422	792	787	362	422	0	0	360	0	0
Stage 1	424	424	-	363	363	-	-	-	-	-	-	-
Stage 2	355	364	-	429	424	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	316	326	636	309	326	687	1148	-	-	1210	-	-
Stage 1	612	590	-	660	628	-	-	-	-	-	-	-
Stage 2	666	627	-	608	590	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	314	321	636	299	321	677	1148	-	-	1207	-	-
Mov Cap-2 Maneuver	314	321	-	299	321	-	-	-	-	-	-	-
Stage 1	611	589	-	651	620	-	-	-	-	-	-	-
Stage 2	662	619	-	597	589	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.9		16.3		0.1		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1148	-	-	474	325	1207	-
HCM Lane V/C Ratio	0.002	-	-	0.035	0.024	0.001	-
HCM Control Delay (s)	8.1	0	-	12.9	16.3	8	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗			↑	↑	
Traffic Vol, veh/h	1	5	0	84	60	0
Future Vol, veh/h	1	5	0	84	60	0
Conflicting Peds, #/hr	1	1	11	0	0	11
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	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	6	0	101	72	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	174	73	-	0	-	0
Stage 1	72	-	-	-	-	-
Stage 2	102	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	821	995	0	-	-	0
Stage 1	956	-	0	-	-	0
Stage 2	927	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	821	994	-	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	927	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 960	-
HCM Lane V/C Ratio	- 0.008	-
HCM Control Delay (s)	- 8.8	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0	-

HCM 2010 TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

07/06/2018

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	952	945	0	0	3
Future Vol, veh/h	0	952	945	0	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	86	86	86	86	86	86
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	0	1107	1099	0	0	3

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

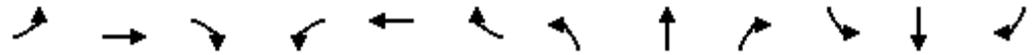
Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	485
HCM Lane V/C Ratio	-	-	0.007
HCM Control Delay (s)	-	-	12.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Capacity Analysis – Year 2023 Base (Road Diet) Projected Conditions

Lanes, Volumes, Timings
2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	26	458	110	33	332	13	100	200	107	13	189	29
Future Volume (vph)	26	458	110	33	332	13	100	200	107	13	189	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.95		1.00	0.96		0.94			0.99	
Frt			0.850			0.850		0.964			0.983	
Flt Protected		0.997			0.996			0.988			0.997	
Satd. Flow (prot)	0	1620	1615	0	1547	1615	0	1430	0	0	1590	0
Flt Permitted		0.918			0.569			0.843			0.963	
Satd. Flow (perm)	0	1491	1534	0	883	1548	0	1214	0	0	1531	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63			55		39			16	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	13		18	18		13	21		92	92		21
Confl. Bikes (#/hr)			1						29			1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	1%	0%	0%	1%	0%	1%	0%	5%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	606	138	0	456	16	0	509	0	0	288	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (%)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%		55.0%	55.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		21.1	21.1		21.1	21.1		25.3			25.3	
Actuated g/C Ratio		0.36	0.36		0.36	0.36		0.43			0.43	

18-100 - Fenwick High School Parking Garage
Year 2023 AM Peak Hour - No Build with Road Diet, 10% diversion & Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

02/01/2019

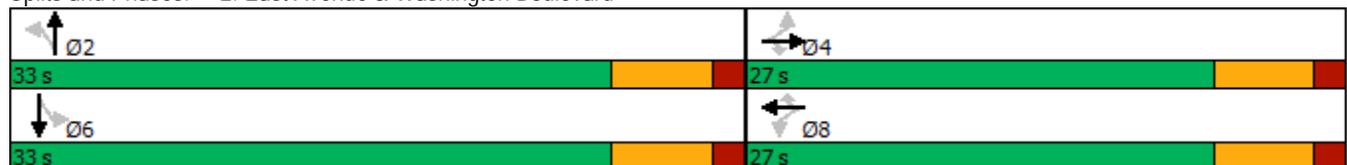


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		1.13	0.23		1.43	0.03		0.93				0.43
Control Delay		103.2	9.5		235.2	0.2		42.0				13.0
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		103.2	9.5		235.2	0.2		42.0				13.0
LOS		F	A		F	A		D				B
Approach Delay		85.8			227.2			42.0				13.0
Approach LOS		F			F			D				B
Queue Length 50th (ft)		-269	18		-235	0		149				62
Queue Length 95th (ft)		#370	43		#333	0		#268				98
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		537	592		318	593		583				717
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		1.13	0.23		1.43	0.03		0.87				0.40

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 58.4
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.43
 Intersection Signal Delay: 97.5
 Intersection LOS: F
 Intersection Capacity Utilization 98.3%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

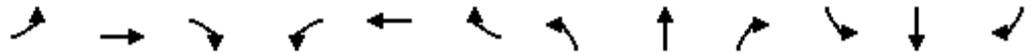
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	901	22	32	824	50	55	240	45	39	120	93
Future Volume (vph)	177	901	22	32	824	50	55	240	45	39	120	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96			0.88	0.97	0.97		0.94	0.97	
Frt			0.850			0.850		0.976			0.935	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1636	1621	1501	1685	1649	1385	1736	1667	0	1805	1838	0
Flt Permitted	0.089			0.122			0.443			0.289		
Satd. Flow (perm)	153	1621	1438	216	1649	1219	786	1667	0	516	1838	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			109		9				37
Link Speed (mph)		30			30			25				25
Link Distance (ft)		567			227			215				123
Travel Time (s)		12.9			5.2			5.9				3.4
Confl. Peds. (#/hr)	59		13	13		59	17		48	48		17
Confl. Bikes (#/hr)									31			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	0%	0%	2%	8%	4%	1%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	1	0	0	2	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	943	26	37	862	58	64	331	0	45	248	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	34.0	34.0	23.0	23.0		23.0	23.0	
Total Split (s)	12.0	63.0	63.0	7.0	58.0	58.0	30.0	30.0		30.0	30.0	
Total Split (%)	12.0%	63.0%	63.0%	7.0%	58.0%	58.0%	30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	67.2	60.5	60.5	58.6	52.2	52.2	23.3	23.3		23.3	23.3	
Actuated g/C Ratio	0.67	0.60	0.60	0.59	0.52	0.52	0.23	0.23		0.23	0.23	

18-100 - Fenwick High School Parking Garage
Year 2023 AM Peak Hour - No Build with Road Diet, 10% diversion & No Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

02/01/2019

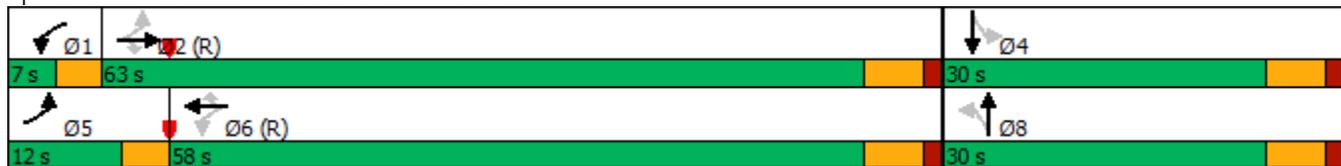


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.88	0.96	0.03	0.20	1.00	0.08	0.35	0.84		0.38	0.54	
Control Delay	54.6	42.6	0.0	8.8	56.3	0.6	38.0	55.1		42.3	33.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	54.6	42.6	0.0	8.8	56.3	0.6	38.0	55.1		42.3	33.2	
LOS	D	D	A	A	E	A	D	E		D	C	
Approach Delay		43.7			51.1			52.3			34.6	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	69	-608	0	7	-533	0	34	195		24	117	
Queue Length 95th (ft)	#187	#814	0	17	#750	1	71	#310		57	184	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	234	979	897	183	861	689	188	406		123	469	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	0.96	0.03	0.20	1.00	0.08	0.34	0.82		0.37	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 46.5
 Intersection LOS: D
 Intersection Capacity Utilization 91.5%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

02/01/2019



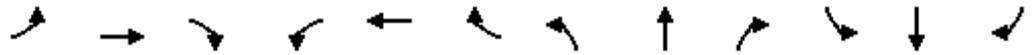
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	458	110	33	332	13	100	200	107	13	189	29
Future Volume (vph)	26	458	110	33	332	13	100	200	107	13	189	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.94			0.99	
Frt		0.975			0.995			0.964			0.983	
Flt Protected		0.998			0.996			0.988			0.997	
Satd. Flow (prot)	0	1569	0	0	1538	0	0	1430	0	0	1590	0
Flt Permitted		0.967			0.850			0.843			0.963	
Satd. Flow (perm)	0	1520	0	0	1312	0	0	1214	0	0	1531	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			3			39			16	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	13		18	18		13	21		92	92		21
Confl. Bikes (#/hr)			1						29			1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	1%	0%	0%	1%	0%	1%	0%	5%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	744	0	0	472	0	0	509	0	0	288	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%		55.0%	55.0%		55.0%	55.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		21.1			21.1			25.3			25.3	
Actuated g/C Ratio		0.36			0.36			0.43			0.43	

18-100 - Fenwick High School Parking Garage
Year 2023 AM Peak Hour - No Build with Road Diet, 10% diversion & No Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		1.33			0.99			0.93			0.43	
Control Delay		181.6			64.1			42.0			13.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		181.6			64.1			42.0			13.0	
LOS		F			E			D			B	
Approach Delay		181.6			64.1			42.0			13.0	
Approach LOS		F			E			D			B	
Queue Length 50th (ft)		-367			-175			149			62	
Queue Length 95th (ft)		#471			#290			#268			98	
Internal Link Dist (ft)		477			367			170			183	
Turn Bay Length (ft)												
Base Capacity (vph)		561			475			583			717	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.33			0.99			0.87			0.40	

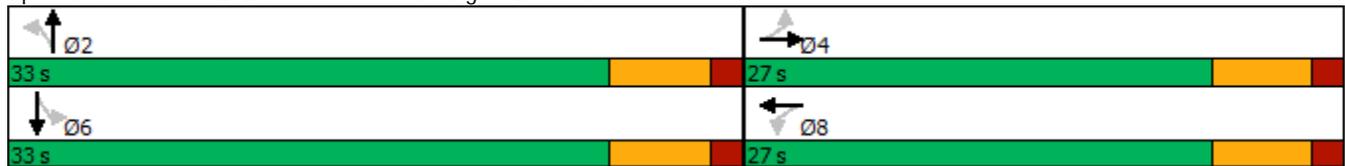
Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 58.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 94.6
 Intersection Capacity Utilization 90.3%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

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

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	972	14	20	879	4	48
Future Vol, veh/h	972	14	20	879	4	48
Conflicting Peds, #/hr	0	4	4	0	17	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	7	0	3	0	2
Mvmt Flow	994	16	23	899	5	55

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1014	0	1968 1009
Stage 1	-	-	-	-	1006 -
Stage 2	-	-	-	-	962 -
Critical Hdwy	-	-	4.1	-	6.4 6.22
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.318
Pot Cap-1 Maneuver	-	-	692	-	70 292
Stage 1	-	-	-	-	357 -
Stage 2	-	-	-	-	374 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	689	-	66 290
Mov Cap-2 Maneuver	-	-	-	-	193 -
Stage 1	-	-	-	-	356 -
Stage 2	-	-	-	-	356 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	21.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	-	-	689	-
HCM Lane V/C Ratio	0.212	-	-	0.033	-
HCM Control Delay (s)	21.3	-	-	10.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	53	976	841	43	16	62
Future Vol, veh/h	53	976	841	43	16	62
Conflicting Peds, #/hr	11	0	0	11	3	17
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	2	2	7	13	11
Mvmt Flow	60	998	860	49	18	70

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	920	0	-	0	1992 888
Stage 1	-	-	-	-	871 -
Stage 2	-	-	-	-	1121 -
Critical Hdwy	4.1	-	-	-	6.53 6.31
Critical Hdwy Stg 1	-	-	-	-	5.53 -
Critical Hdwy Stg 2	-	-	-	-	5.53 -
Follow-up Hdwy	2.2	-	-	-	3.617 3.399
Pot Cap-1 Maneuver	750	-	-	-	62 330
Stage 1	-	-	-	-	392 -
Stage 2	-	-	-	-	296 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	742	-	-	-	56 321
Mov Cap-2 Maneuver	-	-	-	-	172 -
Stage 1	-	-	-	-	357 -
Stage 2	-	-	-	-	293 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	742	-	-	-	273
HCM Lane V/C Ratio	0.081	-	-	-	0.325
HCM Control Delay (s)	10.3	-	-	-	24.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

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	6	511	42	30	365	1	5	0	70	1	1	8
Future Vol, veh/h	6	511	42	30	365	1	5	0	70	1	1	8
Conflicting Peds, #/hr	4	0	22	22	0	4	20	0	11	11	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	14	1	12	0	1	0	0	0	0	0	0	0
Mvmt Flow	8	639	53	38	456	1	6	0	88	1	1	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	461	0	0	714	0	0	1262	1241	699	1274	1267	481
Stage 1	-	-	-	-	-	-	704	704	-	537	537	-
Stage 2	-	-	-	-	-	-	558	537	-	737	730	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.326	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1040	-	-	895	-	-	148	176	443	145	170	589
Stage 1	-	-	-	-	-	-	431	443	-	532	526	-
Stage 2	-	-	-	-	-	-	518	526	-	413	431	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1036	-	-	876	-	-	131	160	429	108	154	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	131	160	-	108	154	-
Stage 1	-	-	-	-	-	-	416	428	-	523	493	-
Stage 2	-	-	-	-	-	-	469	493	-	321	416	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.7			17.9			16.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	1036	-	-	876	-	-	337
HCM Lane V/C Ratio	0.251	0.007	-	-	0.043	-	-	0.037
HCM Control Delay (s)	17.9	8.5	0	-	9.3	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.1

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	2	1	6	4	0	0	0	245	197	112	240	3
Future Vol, veh/h	2	1	6	4	0	0	0	245	197	112	240	3
Conflicting Peds, #/hr	109	0	0	0	0	109	0	0	90	90	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	1	0	1	0
Mvmt Flow	3	1	8	5	0	0	0	318	256	145	312	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1159	1268	314	1145	1142	645	316	0	0	664	0	0
Stage 1	604	604	-	536	536	-	-	-	-	-	-	-
Stage 2	555	664	-	609	606	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	174	170	731	178	202	476	1256	-	-	935	-	-
Stage 1	489	491	-	532	527	-	-	-	-	-	-	-
Stage 2	520	461	-	486	490	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	131	123	731	134	147	390	1256	-	-	855	-	-
Mov Cap-2 Maneuver	131	123	-	134	147	-	-	-	-	-	-	-
Stage 1	489	390	-	486	482	-	-	-	-	-	-	-
Stage 2	466	421	-	380	389	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18.2		32.9		0		3.2	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1256	-	-	285	134	855	-
HCM Lane V/C Ratio	-	-	-	0.041	0.039	0.17	-
HCM Control Delay (s)	0	-	-	18.2	32.9	10.1	0
HCM Lane LOS	A	-	-	C	D	B	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.6	-

HCM 6th TWSC
7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	44	159	247	0	0	326
Future Vol, veh/h	44	159	247	0	0	326
Conflicting Peds, #/hr	1	1	0	24	24	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	76	76	76	76	76	76
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	58	209	325	0	0	429

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	755	326	0	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.4	6.21	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	-	-	-	-
Pot Cap-1 Maneuver	379	718	-	0	0	-
Stage 1	737	-	-	0	0	-
Stage 2	660	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	379	717	-	-	-	-
Mov Cap-2 Maneuver	379	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 601	-
HCM Lane V/C Ratio	- 0.444	-
HCM Control Delay (s)	- 15.7	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 2.3	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	0	0	0	0	444	22	9	241	4
Future Vol, veh/h	0	0	11	0	0	0	0	444	22	9	241	4
Conflicting Peds, #/hr	109	0	0	0	0	109	0	0	91	91	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	1	1	0
Mvmt Flow	0	0	14	0	0	0	0	577	29	12	313	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1041	1037	316	1030	1025	792	318	0	0	697	0	0
Stage 1	340	340	-	683	683	-	-	-	-	-	-	-
Stage 2	701	697	-	347	342	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	210	233	729	214	237	392	1253	-	-	904	-	-
Stage 1	679	643	-	442	452	-	-	-	-	-	-	-
Stage 2	433	446	-	673	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	186	209	729	189	213	321	1253	-	-	826	-	-
Mov Cap-2 Maneuver	186	209	-	189	213	-	-	-	-	-	-	-
Stage 1	679	631	-	404	413	-	-	-	-	-	-	-
Stage 2	388	407	-	648	630	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	0	0	0.3
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1253	-	-	729	-	826	-
HCM Lane V/C Ratio	-	-	-	0.02	-	0.014	-
HCM Control Delay (s)	0	-	-	10	0	9.4	0
HCM Lane LOS	A	-	-	B	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	4	20	0	72	75	0
Future Vol, veh/h	4	20	0	72	75	0
Conflicting Peds, #/hr	4	51	64	0	0	64
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	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	7	34	0	124	129	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	257	180	-	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	736	868	0	-	-	0
Stage 1	902	-	0	-	-	0
Stage 2	903	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	736	826	-	-	-	-
Mov Cap-2 Maneuver	736	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	903	-	-	-	-	-

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)	- 810	-
HCM Lane V/C Ratio	- 0.051	-
HCM Control Delay (s)	- 9.7	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.2	-

HCM 6th TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	986	883	0	0	23
Future Vol, veh/h	0	986	883	0	0	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	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1032	924	0	0	27

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	329
HCM Lane V/C Ratio	-	-	0.081
HCM Control Delay (s)	-	-	16.9
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	14	337	60	33	444	14	74	226	52	15	266	24
Future Volume (vph)	14	337	60	33	444	14	74	226	52	15	266	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.91		1.00	0.94		0.97			0.99	
Frt			0.850			0.850		0.980			0.989	
Flt Protected		0.998			0.997			0.990			0.998	
Satd. Flow (prot)	0	1609	1615	0	1548	1509	0	1481	0	0	1598	0
Flt Permitted		0.972			0.952			0.862			0.972	
Satd. Flow (perm)	0	1566	1467	0	1475	1413	0	1282	0	0	1550	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55			55		18			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	27		44	44		27	27		107	107		27
Confl. Bikes (#/hr)									2			12
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	1%	7%	3%	1%	6%	7%	1%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	66	0	524	15	0	386	0	0	334	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	31.0	31.0		31.0	31.0	
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	31.0	31.0		31.0	31.0	
Total Split (%)	48.3%	48.3%	48.3%	48.3%	48.3%	48.3%	51.7%	51.7%		51.7%	51.7%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		22.1	22.1		22.1	22.1		20.5			20.5	
Actuated g/C Ratio		0.40	0.40		0.40	0.40		0.37			0.37	

18-100 - Fenwick High School Parking Garage
Year 2023 No Build Afternoon Peak Hour with Road Diet, 10% diversion & Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

02/01/2019

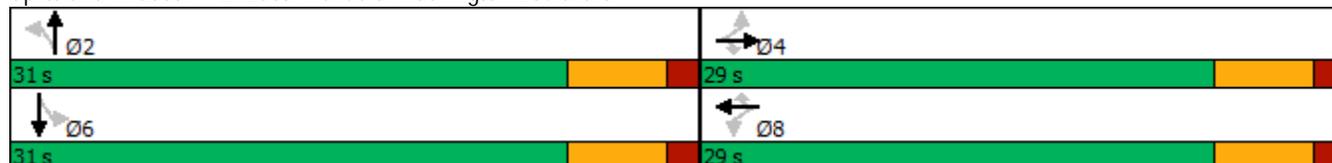


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.61	0.11		0.88	0.02		0.79				0.57
Control Delay		18.9	5.4		36.6	0.1		27.9				17.7
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		18.9	5.4		36.6	0.1		27.9				17.7
LOS		B	A		D	A		C				B
Approach Delay		16.9			35.6			27.9				17.7
Approach LOS		B			D			C				B
Queue Length 50th (ft)		97	2		154	0		105				83
Queue Length 95th (ft)		194	23		#351	1		#230				150
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		666	656		627	633		602				722
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		0.58	0.10		0.84	0.02		0.64				0.46

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 54.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 25.4
 Intersection LOS: C
 Intersection Capacity Utilization 100.2%
 ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



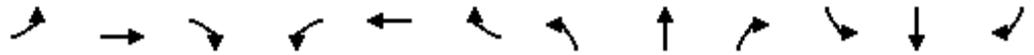
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	692	35	40	859	38	68	198	33	48	223	109
Future Volume (vph)	86	692	35	40	859	38	68	198	33	48	223	109
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.92	0.99		0.94	0.98	0.98		0.94	0.97	
Frt			0.850			0.850		0.979			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	1689	1495	1620	1735	1501	1770	1681	0	1805	1842	0
Flt Permitted	0.089			0.238			0.338			0.505		
Satd. Flow (perm)	150	1689	1378	401	1735	1413	616	1681	0	900	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		10			31	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	23		38	38		23	18		36	36		18
Confl. Bikes (#/hr)			1			4			2			11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	3%	0%	4%	2%	0%	2%	2%	3%	0%	1%	4%
Bus Blockages (#/hr)	0	0	2	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	663	37	43	822	40	72	246	0	51	353	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	10.0	41.0	41.0	10.0	41.0	41.0	39.0	39.0		39.0	39.0	
Total Split (%)	11.1%	45.6%	45.6%	11.1%	45.6%	45.6%	43.3%	43.3%		43.3%	43.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	53.5	46.5	46.5	51.6	43.9	43.9	25.4	25.4		25.4	25.4	
Actuated g/C Ratio	0.59	0.52	0.52	0.57	0.49	0.49	0.28	0.28		0.28	0.28	

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

02/01/2019

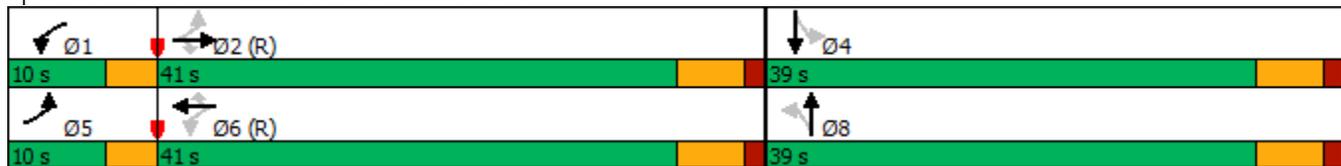


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.45	0.76	0.05	0.14	0.97	0.05	0.41	0.51		0.20	0.65	
Control Delay	18.4	28.4	0.7	9.9	51.9	1.1	32.0	28.7		24.2	30.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.4	28.4	0.7	9.9	51.9	1.1	32.0	28.7		24.2	30.8	
LOS	B	C	A	A	D	A	C	C		C	C	
Approach Delay		25.9			47.6			29.5			30.0	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	19	313	0	9	-503	0	33	112		22	161	
Queue Length 95th (ft)	59	#609	4	27	#802	6	67	162		46	222	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	204	871	749	320	846	729	225	622		330	695	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.45	0.76	0.05	0.13	0.97	0.05	0.32	0.40		0.15	0.51	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 35.2 Intersection LOS: D
 Intersection Capacity Utilization 89.0% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings
2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	337	60	33	444	14	74	226	52	15	266	24
Future Volume (vph)	14	337	60	33	444	14	74	226	52	15	266	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.980			0.996			0.980			0.989	
Flt Protected		0.998			0.997			0.990			0.998	
Satd. Flow (prot)	0	1560	0	0	1537	0	0	1481	0	0	1598	0
Flt Permitted		0.975			0.948			0.860			0.972	
Satd. Flow (perm)	0	1523	0	0	1458	0	0	1279	0	0	1550	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			3			18			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	27		44	44		27	27		107	107		27
Confl. Bikes (#/hr)									2			12
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	1%	7%	3%	1%	6%	7%	1%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	539	0	0	386	0	0	334	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		31.0	31.0		31.0	31.0	
Total Split (s)	29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0	
Total Split (%)	48.3%	48.3%		48.3%	48.3%		51.7%	51.7%		51.7%	51.7%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		22.5			22.5			20.5			20.5	
Actuated g/C Ratio		0.41			0.41			0.37			0.37	

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

02/01/2019

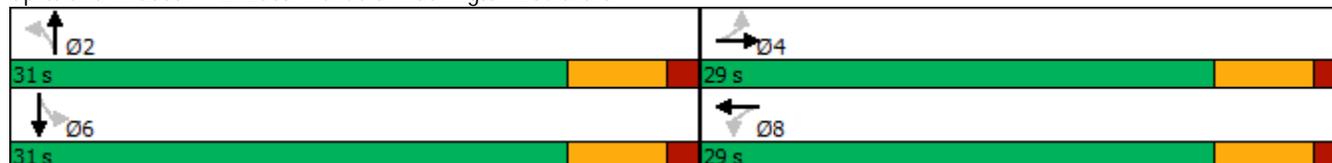


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.71			0.90			0.79			0.57	
Control Delay		22.5			39.4			28.6			17.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.5			39.4			28.6			17.8	
LOS		C			D			C			B	
Approach Delay		22.5			39.4			28.6			17.8	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)		116			161			105			83	
Queue Length 95th (ft)		#272			#372			#230			150	
Internal Link Dist (ft)		477			367			170			183	
Turn Bay Length (ft)												
Base Capacity (vph)		651			615			594			714	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.69			0.88			0.65			0.47	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 55.1
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 28.3
 Intersection LOS: C
 Intersection Capacity Utilization 89.8%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↘	↑	↘	
Traffic Vol, veh/h	765	10	15	914	7	12
Future Vol, veh/h	765	10	15	914	7	12
Conflicting Peds, #/hr	0	54	54	0	0	43
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	20	0	1	14	0
Mvmt Flow	717	10	16	857	7	13

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	781	0	1665
Stage 1	-	-	-	-	776
Stage 2	-	-	-	-	889
Critical Hdwy	-	-	4.1	-	6.54
Critical Hdwy Stg 1	-	-	-	-	5.54
Critical Hdwy Stg 2	-	-	-	-	5.54
Follow-up Hdwy	-	-	2.2	-	3.626
Pot Cap-1 Maneuver	-	-	845	-	99
Stage 1	-	-	-	-	433
Stage 2	-	-	-	-	383
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	802	-	92
Mov Cap-2 Maneuver	-	-	-	-	221
Stage 1	-	-	-	-	411
Stage 2	-	-	-	-	375

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	286	-	-	802	-
HCM Lane V/C Ratio	0.069	-	-	0.019	-
HCM Control Delay (s)	18.5	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↑	↗	↘	↘
Traffic Vol, veh/h	37	720	830	66	25	78
Future Vol, veh/h	37	720	830	66	25	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	0	4	0
Mvmt Flow	39	675	778	69	26	81

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	847	0	-	0	1531 778
Stage 1	-	-	-	-	778 -
Stage 2	-	-	-	-	753 -
Critical Hdwy	4.1	-	-	-	6.44 6.2
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	2.2	-	-	-	3.536 3.3
Pot Cap-1 Maneuver	799	-	-	-	127 400
Stage 1	-	-	-	-	449 -
Stage 2	-	-	-	-	462 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	799	-	-	-	121 400
Mov Cap-2 Maneuver	-	-	-	-	258 -
Stage 1	-	-	-	-	427 -
Stage 2	-	-	-	-	462 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	799	-	-	-	353
HCM Lane V/C Ratio	0.048	-	-	-	0.304
HCM Control Delay (s)	9.7	-	-	-	19.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

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	2	379	28	29	464	0	17	0	71	0	0	0
Future Vol, veh/h	2	379	28	29	464	0	17	0	71	0	0	0
Conflicting Peds, #/hr	22	0	36	36	0	22	48	0	26	26	0	48
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	3	1	0	0	0	0	0	0	0
Mvmt Flow	2	408	30	31	499	0	18	0	76	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	521	0	0	474	0	0	1072	1046	485	1074	1061	569
Stage 1	-	-	-	-	-	-	463	463	-	583	583	-
Stage 2	-	-	-	-	-	-	609	583	-	491	478	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1056	-	-	1083	-	-	200	230	586	199	226	525
Stage 1	-	-	-	-	-	-	583	568	-	502	502	-
Stage 2	-	-	-	-	-	-	486	502	-	563	559	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1034	-	-	1046	-	-	178	208	552	158	204	491
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	208	-	158	204	-
Stage 1	-	-	-	-	-	-	561	547	-	490	471	-
Stage 2	-	-	-	-	-	-	445	471	-	472	538	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	393	1034	-	-	1046	-	-	-
HCM Lane V/C Ratio	0.241	0.002	-	-	0.03	-	-	-
HCM Control Delay (s)	17	8.5	0	-	8.5	0	-	0
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	3	13	0	2	0	255	61	40	354	3
Future Vol, veh/h	1	0	3	13	0	2	0	255	61	40	354	3
Conflicting Peds, #/hr	54	0	1	1	0	54	0	0	43	43	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	0	1	0
Mvmt Flow	1	0	4	16	0	2	0	315	75	49	437	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	945	970	440	936	935	450	441	0	0	433	0	0
Stage 1	537	537	-	396	396	-	-	-	-	-	-	-
Stage 2	408	433	-	540	539	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	244	255	621	247	267	613	1130	-	-	1137	-	-
Stage 1	532	526	-	633	607	-	-	-	-	-	-	-
Stage 2	624	585	-	530	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	220	230	620	225	241	558	1130	-	-	1090	-	-
Mov Cap-2 Maneuver	220	230	-	225	241	-	-	-	-	-	-	-
Stage 1	532	494	-	607	582	-	-	-	-	-	-	-
Stage 2	589	561	-	495	494	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	21	0	0.9
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1130	-	-	426	244	1090	-
HCM Lane V/C Ratio	-	-	-	0.012	0.076	0.045	-
HCM Control Delay (s)	0	-	-	13.6	21	8.5	0
HCM Lane LOS	A	-	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-

HCM 6th TWSC
 7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↑			↑
Traffic Vol, veh/h	34	75	268	0	0	367
Future Vol, veh/h	34	75	268	0	0	367
Conflicting Peds, #/hr	11	11	0	61	61	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	85	85	85	85	85	85
Heavy Vehicles, %	6	5	2	0	0	1
Mvmt Flow	40	88	315	0	0	432

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	758	326	0	-	-	-
Stage 1	315	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	-	-
Pot Cap-1 Maneuver	369	708	-	0	0	-
Stage 1	731	-	-	0	0	-
Stage 2	639	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	365	701	-	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 545	-
HCM Lane V/C Ratio	- 0.235	-
HCM Control Delay (s)	- 13.6	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.9	-

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	1	0	12	12	0	10	3	305	14	6	357	7
Future Vol, veh/h	1	0	12	12	0	10	3	305	14	6	357	7
Conflicting Peds, #/hr	54	0	1	1	0	54	0	0	45	45	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	8	0	0	0	1	7	0	1	0
Mvmt Flow	1	0	15	15	0	12	4	377	17	7	441	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	914	907	447	907	903	485	450	0	0	439	0	0
Stage 1	460	460	-	439	439	-	-	-	-	-	-	-
Stage 2	454	447	-	468	464	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	256	278	616	250	279	586	1121	-	-	1132	-	-
Stage 1	585	569	-	585	582	-	-	-	-	-	-	-
Stage 2	589	577	-	564	567	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	235	262	615	231	263	532	1121	-	-	1083	-	-
Mov Cap-2 Maneuver	235	262	-	231	263	-	-	-	-	-	-	-
Stage 1	582	564	-	557	554	-	-	-	-	-	-	-
Stage 2	543	549	-	545	562	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.8		17.7		0.1		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1121	-	-	547	311	1083	-
HCM Lane V/C Ratio	0.003	-	-	0.029	0.087	0.007	-
HCM Control Delay (s)	8.2	0	-	11.8	17.7	8.3	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗			↑↑		
Traffic Vol, veh/h	7	14	0	76	66	0
Future Vol, veh/h	7	14	0	76	66	0
Conflicting Peds, #/hr	10	21	78	0	0	78
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	66	66	66	66	66	66
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	11	21	0	115	100	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	225	121	-	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	768	936	0	-	-	0
Stage 1	929	-	0	-	-	0
Stage 2	906	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	768	917	-	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 861	-
HCM Lane V/C Ratio	- 0.037	-
HCM Control Delay (s)	- 9.3	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.1	-

HCM 6th TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	775	921	0	0	16
Future Vol, veh/h	0	775	921	0	0	16
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	94	94	94	94	94	94
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	0	742	882	0	0	17

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	348
HCM Lane V/C Ratio	-	-	0.049
HCM Control Delay (s)	-	-	15.9
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.2

Lanes, Volumes, Timings
2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	15	449	68	41	572	24	58	255	32	15	269	28
Future Volume (vph)	15	449	68	41	572	24	58	255	32	15	269	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		1.00	0.96		0.99			0.99	
Frt			0.850			0.850		0.987			0.988	
Flt Protected		0.998			0.997			0.992			0.998	
Satd. Flow (prot)	0	1640	1583	0	1548	1615	0	1531	0	0	1607	0
Flt Permitted		0.947			0.940			0.886			0.972	
Satd. Flow (perm)	0	1556	1520	0	1459	1553	0	1363	0	0	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53			53		10			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	11		11	11		11	20		28	28		20
Confl. Bikes (#/hr)			2						5			7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	1%	0%	4%	1%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	504	74	0	667	26	0	375	0	0	338	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	30.0	30.0		30.0	30.0	
Total Split (%)	51.6%	51.6%	51.6%	51.6%	51.6%	51.6%	48.4%	48.4%		48.4%	48.4%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		26.1	26.1		26.1	26.1		19.9			19.9	
Actuated g/C Ratio		0.45	0.45		0.45	0.45		0.34			0.34	

18-100 - Fenwick High School Parking Garage
Year 2023 PM Peak Hour - No Build, 10% diversion & Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings

2: East Avenue & Washington Boulevard

02/01/2019

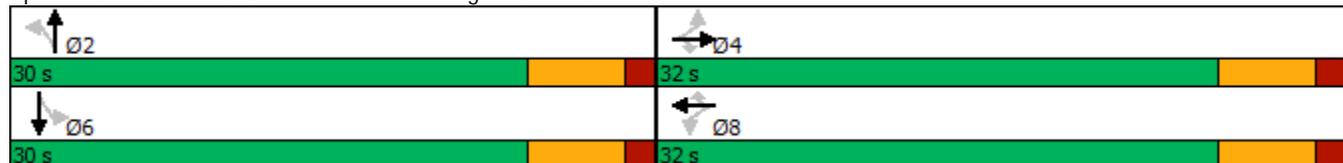


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.72	0.10		1.02	0.04		0.79				0.62
Control Delay		22.0	5.5		61.0	1.7		30.5				21.1
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		22.0	5.5		61.0	1.7		30.5				21.1
LOS		C	A		E	A		C				C
Approach Delay		19.9			58.8			30.5				21.1
Approach LOS		B			E			C				C
Queue Length 50th (ft)		138	4		-240	0		112				93
Queue Length 95th (ft)		#307	25		#473	6		#231				165
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		699	712		656	727		571				654
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		0.72	0.10		1.02	0.04		0.66				0.52

Intersection Summary

Area Type: Other
 Cycle Length: 62
 Actuated Cycle Length: 58
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 35.7
 Intersection LOS: D
 Intersection Capacity Utilization 110.0%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



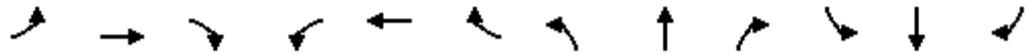
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	872	29	41	886	30	45	232	35	55	258	87
Future Volume (vph)	56	872	29	41	886	30	45	232	35	55	258	87
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.96	0.98	0.99		0.97	0.98	
Frt			0.850			0.850		0.980			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1723	1501	1685	1718	1458	1805	1715	0	1770	1858	0
Flt Permitted	0.147			0.186			0.299			0.438		
Satd. Flow (perm)	256	1723	1426	328	1718	1404	560	1715	0	790	1858	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		8			18	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	10		20	20		10	13		21	21		13
Confl. Bikes (#/hr)						2			3			7
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	0%	0%	3%	3%	0%	1%	0%	2%	4%	1%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	793	29	41	805	30	45	269	0	56	349	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	8.0	53.0	53.0	7.0	52.0	52.0	30.0	30.0		30.0	30.0	
Total Split (%)	8.9%	58.9%	58.9%	7.8%	57.8%	57.8%	33.3%	33.3%		33.3%	33.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	56.6	51.4	51.4	54.5	48.9	48.9	22.4	22.4		22.4	22.4	
Actuated g/C Ratio	0.63	0.57	0.57	0.61	0.54	0.54	0.25	0.25		0.25	0.25	

Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

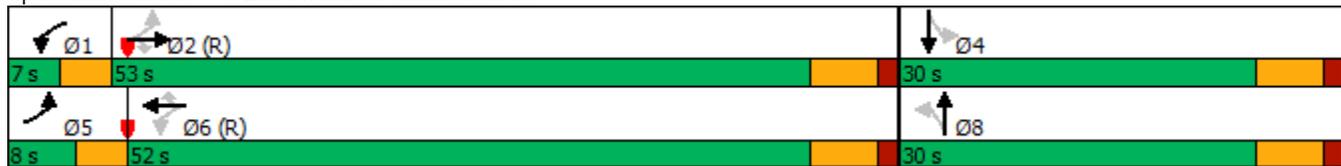


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.81	0.03	0.16	0.86	0.04	0.32	0.62		0.29	0.73	
Control Delay	8.9	25.3	0.1	7.9	31.0	0.1	34.0	35.7		30.9	39.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.9	25.3	0.1	7.9	31.0	0.1	34.0	35.7		30.9	39.1	
LOS	A	C	A	A	C	A	C	D		C	D	
Approach Delay		23.4			28.8			35.5			38.0	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	11	378	0	8	400	0	20	129		25	169	
Queue Length 95th (ft)	25	#630	0	20	#658	0	53	210		60	266	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	238	983	847	262	933	798	149	463		210	508	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.81	0.03	0.16	0.86	0.04	0.30	0.58		0.27	0.69	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 29.2
 Intersection LOS: C
 Intersection Capacity Utilization 89.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

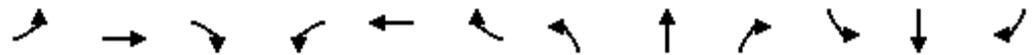
02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	449	68	41	572	24	58	255	32	15	269	28
Future Volume (vph)	15	449	68	41	572	24	58	255	32	15	269	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.983			0.995			0.987			0.988	
Flt Protected		0.999			0.997			0.992			0.998	
Satd. Flow (prot)	0	1602	0	0	1539	0	0	1531	0	0	1607	0
Flt Permitted		0.975			0.941			0.886			0.972	
Satd. Flow (perm)	0	1563	0	0	1452	0	0	1363	0	0	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			4			10			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	11		11	11		11	20		28	28		20
Confl. Bikes (#/hr)			2						5			7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	1%	0%	4%	1%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	578	0	0	693	0	0	375	0	0	338	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		33.0	33.0		33.0	33.0	
Total Split (s)	32.0	32.0		32.0	32.0		30.0	30.0		30.0	30.0	
Total Split (%)	51.6%	51.6%		51.6%	51.6%		48.4%	48.4%		48.4%	48.4%	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None										
Act Effect Green (s)		26.1			26.1			19.9			19.9	
Actuated g/C Ratio		0.45			0.45			0.34			0.34	

Lanes, Volumes, Timings
2: East Avenue & Washington Boulevard

02/01/2019

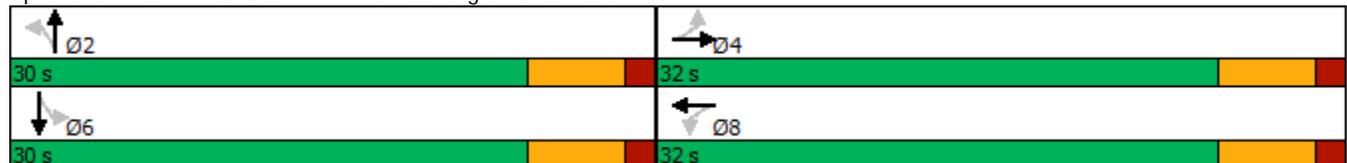


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.81			1.06			0.79			0.62	
Control Delay		26.8			72.9			30.5			21.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		26.8			72.9			30.5			21.1	
LOS		C			E			C			C	
Approach Delay		26.8			72.9			30.5			21.1	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		164			-281			112			93	
Queue Length 95th (ft)		#370			#504			#231			165	
Internal Link Dist (ft)		477			367			170			183	
Turn Bay Length (ft)												
Base Capacity (vph)		711			655			571			654	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.81			1.06			0.66			0.52	

Intersection Summary

Area Type: Other
 Cycle Length: 62
 Actuated Cycle Length: 58
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 42.6
 Intersection LOS: D
 Intersection Capacity Utilization 98.7%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
 3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	952	9	30	946	8	9
Future Vol, veh/h	952	9	30	946	8	9
Conflicting Peds, #/hr	0	12	12	0	0	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	921	10	32	915	9	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	943	0	1917
Stage 1	-	-	-	-	938
Stage 2	-	-	-	-	979
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	736	-	75
Stage 1	-	-	-	-	384
Stage 2	-	-	-	-	367
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	728	-	71
Mov Cap-2 Maneuver	-	-	-	-	199
Stage 1	-	-	-	-	380
Stage 2	-	-	-	-	351

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	728	-
HCM Lane V/C Ratio	0.074	-	-	0.044	-
HCM Control Delay (s)	20.7	-	-	10.2	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	57	902	924	76	13	48
Future Vol, veh/h	57	902	924	76	13	48
Conflicting Peds, #/hr	15	0	0	15	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	7	0
Mvmt Flow	61	873	894	82	14	52

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	991	0	-	0	1904
Stage 1	-	-	-	-	909
Stage 2	-	-	-	-	995
Critical Hdwy	4.1	-	-	-	6.47
Critical Hdwy Stg 1	-	-	-	-	5.47
Critical Hdwy Stg 2	-	-	-	-	5.47
Follow-up Hdwy	2.2	-	-	-	3.563
Pot Cap-1 Maneuver	706	-	-	-	73
Stage 1	-	-	-	-	385
Stage 2	-	-	-	-	350
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	696	-	-	-	65
Mov Cap-2 Maneuver	-	-	-	-	187
Stage 1	-	-	-	-	346
Stage 2	-	-	-	-	345

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	696	-	-	-	284
HCM Lane V/C Ratio	0.088	-	-	-	0.231
HCM Control Delay (s)	10.7	-	-	-	21.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

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	9	462	22	51	612	2	19	0	59	2	1	5
Future Vol, veh/h	9	462	22	51	612	2	19	0	59	2	1	5
Conflicting Peds, #/hr	14	0	14	14	0	14	12	0	12	12	0	12
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0	0	0	0	0	0	0
Mvmt Flow	9	467	22	52	618	2	19	0	60	2	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	634	0	0	503	0	0	1248	1248	504	1275	1258	645
Stage 1	-	-	-	-	-	-	510	510	-	737	737	-
Stage 2	-	-	-	-	-	-	738	738	-	538	521	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	959	-	-	1067	-	-	152	175	572	145	172	476
Stage 1	-	-	-	-	-	-	550	541	-	413	428	-
Stage 2	-	-	-	-	-	-	413	427	-	531	535	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	946	-	-	1053	-	-	136	156	558	118	153	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	156	-	118	153	-
Stage 1	-	-	-	-	-	-	536	527	-	402	391	-
Stage 2	-	-	-	-	-	-	373	390	-	463	521	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.7			20			20.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	318	946	-	-	1053	-	-	234
HCM Lane V/C Ratio	0.248	0.01	-	-	0.049	-	-	0.035
HCM Control Delay (s)	20	8.8	0	-	8.6	0	-	20.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.2	-	-	0.1

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	3	12	1	1	1	300	19	15	370	1
Future Vol, veh/h	1	1	3	12	1	1	1	300	19	15	370	1
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	11	11	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	1	3	13	1	1	1	333	21	17	411	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	796	813	412	805	803	358	412	0	0	365	0	0
Stage 1	446	446	-	357	357	-	-	-	-	-	-	-
Stage 2	350	367	-	448	446	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	307	315	644	303	319	691	1158	-	-	1205	-	-
Stage 1	595	577	-	665	632	-	-	-	-	-	-	-
Stage 2	671	626	-	594	577	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	300	306	644	293	309	682	1158	-	-	1192	-	-
Mov Cap-2 Maneuver	300	306	-	293	309	-	-	-	-	-	-	-
Stage 1	594	566	-	658	625	-	-	-	-	-	-	-
Stage 2	666	619	-	579	566	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.2		17.4		0		0.3	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	444	307	1192	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.051	0.014	-
HCM Control Delay (s)	8.1	0	-	13.2	17.4	8.1	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-

HCM 6th TWSC
7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	12	33	307	0	0	370
Future Vol, veh/h	12	33	307	0	0	370
Conflicting Peds, #/hr	6	8	0	20	20	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	89	89	89	89	89	89
Heavy Vehicles, %	0	6	1	0	0	1
Mvmt Flow	13	37	345	0	0	416

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	767	353	0	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	-	-
Pot Cap-1 Maneuver	373	682	-	0	0	-
Stage 1	722	-	-	0	0	-
Stage 2	666	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	371	677	-	-	-	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 555	-
HCM Lane V/C Ratio	- 0.091	-
HCM Control Delay (s)	- 12.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	10	6	0	1	2	314	2	1	383	1
Future Vol, veh/h	5	0	10	6	0	1	2	314	2	1	383	1
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	12	12	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	6	0	11	7	0	1	2	349	2	1	426	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	787	796	427	800	795	365	427	0	0	363	0	0
Stage 1	429	429	-	366	366	-	-	-	-	-	-	-
Stage 2	358	367	-	434	429	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	312	322	632	306	323	685	1143	-	-	1207	-	-
Stage 1	608	587	-	657	626	-	-	-	-	-	-	-
Stage 2	664	626	-	604	587	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	310	317	632	297	318	675	1143	-	-	1193	-	-
Mov Cap-2 Maneuver	310	317	-	297	318	-	-	-	-	-	-	-
Stage 1	607	586	-	648	618	-	-	-	-	-	-	-
Stage 2	660	618	-	593	586	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13		16.4		0.1		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1143	-	-	469	323	1193	-
HCM Lane V/C Ratio	0.002	-	-	0.036	0.024	0.001	-
HCM Control Delay (s)	8.2	0	-	13	16.4	8	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

HCM 6th TWSC
9: Scoville Avenue & Alley

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			↑		↑
Traffic Vol, veh/h	1	5	0	85	61	0
Future Vol, veh/h	1	5	0	85	61	0
Conflicting Peds, #/hr	1	1	11	0	0	11
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	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	6	0	102	73	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	176	74	-	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	818	993	0	-	-	0
Stage 1	955	-	0	-	-	0
Stage 2	926	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	818	992	-	-	-	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	926	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 958	-
HCM Lane V/C Ratio	- 0.008	-
HCM Control Delay (s)	- 8.8	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0	-

HCM 6th TWSC
 10: Madison Street & Fenwick Exit Only Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	961	954	0	0	3
Future Vol, veh/h	0	961	954	0	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	86	86	86	86	86	86
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	0	1006	998	0	0	3

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	299
HCM Lane V/C Ratio	-	-	0.012
HCM Control Delay (s)	-	-	17.2
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0

Capacity Analysis – Year 2023 Total
Projected Conditions

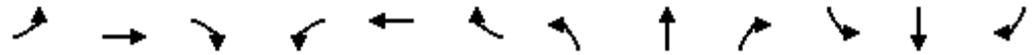
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	901	22	34	826	50	55	260	45	38	118	92
Future Volume (vph)	236	901	22	34	826	50	55	260	45	38	118	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96			0.88	0.97	0.97		0.95	0.97	
Frt			0.850			0.850		0.978			0.934	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1636	1621	1501	1685	1649	1385	1736	1674	0	1805	1836	0
Flt Permitted	0.084			0.118			0.454			0.255		
Satd. Flow (perm)	145	1621	1438	209	1649	1219	805	1674	0	458	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			109		8				37
Link Speed (mph)		30			30			25				25
Link Distance (ft)		567			227			215				123
Travel Time (s)		12.9			5.2			5.9				3.4
Confl. Peds. (#/hr)	59		13	13		59	17		48	48		17
Confl. Bikes (#/hr)									31			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	0%	0%	2%	8%	4%	1%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	1	0	0	2	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	943	26	40	864	58	64	354	0	44	244	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	12.0	63.0	63.0	7.0	58.0	58.0	30.0	30.0		30.0	30.0	
Total Split (%)	12.0%	63.0%	63.0%	7.0%	58.0%	58.0%	30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	66.8	60.1	60.1	58.3	52.0	52.0	23.7	23.7		23.7	23.7	
Actuated g/C Ratio	0.67	0.60	0.60	0.58	0.52	0.52	0.24	0.24		0.24	0.24	

Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

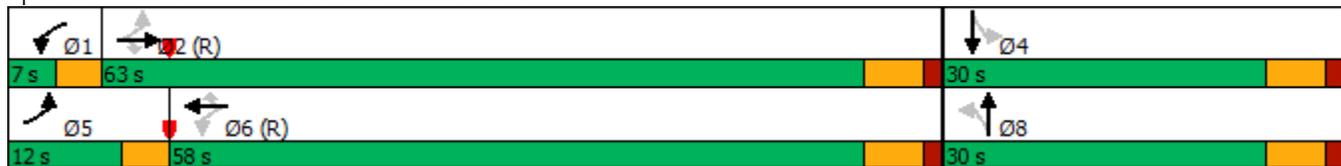


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.21	0.97	0.03	0.23	1.01	0.08	0.34	0.88		0.41	0.53	
Control Delay	150.3	44.0	0.0	9.3	58.2	0.6	37.3	59.9		45.2	32.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	150.3	44.0	0.0	9.3	58.2	0.6	37.3	59.9		45.2	32.6	
LOS	F	D	A	A	E	A	D	E		D	C	
Approach Delay		66.5			52.7			56.5			34.5	
Approach LOS		E			D			E			C	
Queue Length 50th (ft)	~160	~608	0	8	-539	0	34	213		24	114	
Queue Length 95th (ft)	#299	#814	0	18	#751	1	71	#344		58	180	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	227	973	892	176	857	686	193	407		109	468	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.21	0.97	0.03	0.23	1.01	0.08	0.33	0.87		0.40	0.52	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 57.3
 Intersection LOS: E
 Intersection Capacity Utilization 95.9%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗		↕			↕	
Traffic Volume (vph)	26	458	140	52	332	13	100	200	107	13	202	29
Future Volume (vph)	26	458	140	52	332	13	100	200	107	13	202	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.95		1.00	0.96		0.94			0.99	
Frt			0.850			0.850		0.964			0.984	
Flt Protected		0.997			0.993			0.988			0.997	
Satd. Flow (prot)	0	1620	1615	0	1543	1615	0	1430	0	0	1592	0
Flt Permitted		0.872			0.442			0.837			0.965	
Satd. Flow (perm)	0	1416	1534	0	686	1548	0	1205	0	0	1536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			55		39			15	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	13		18	18		13	21		92	92		21
Confl. Bikes (#/hr)			1						29			1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	1%	0%	0%	1%	0%	1%	0%	5%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	606	175	0	480	16	0	509	0	0	305	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (%)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%		55.0%	55.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		21.0	21.0		21.0	21.0		25.4			25.4	
Actuated g/C Ratio		0.36	0.36		0.36	0.36		0.43			0.43	

18-100 - Fenwick High School Parking Garage
Year 2023 Future AM Peak Hour - Road Diet, 10% diversion, Imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings

2: East Avenue & Washington Boulevard

02/01/2019

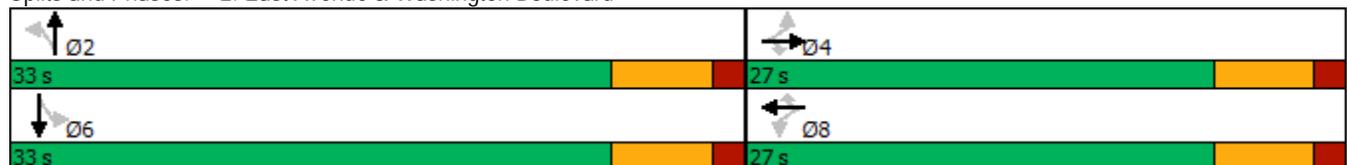


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		1.19	0.29		1.94	0.03		0.93				0.45
Control Delay		127.6	9.7		460.5	0.2		42.9				13.4
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		127.6	9.7		460.5	0.2		42.9				13.4
LOS		F	A		F	A		D				B
Approach Delay		101.2			445.6			42.9				13.4
Approach LOS		F			F			D				B
Queue Length 50th (ft)		-279	23		-280	0		150				67
Queue Length 95th (ft)		#380	51		#379	0		#270				105
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		509	602		247	591		578				718
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		1.19	0.29		1.94	0.03		0.88				0.42

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 58.5
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.94
 Intersection Signal Delay: 155.9
 Intersection LOS: F
 Intersection Capacity Utilization 104.2%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	971	14	20	927	4	48
Future Vol, veh/h	971	14	20	927	4	48
Conflicting Peds, #/hr	0	4	4	0	17	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	7	0	3	0	2
Mvmt Flow	993	16	23	948	5	55

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1013	0	2016
Stage 1	-	-	-	-	1005
Stage 2	-	-	-	-	1011
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	692	-	65
Stage 1	-	-	-	-	357
Stage 2	-	-	-	-	355
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	689	-	62
Mov Cap-2 Maneuver	-	-	-	-	187
Stage 1	-	-	-	-	356
Stage 2	-	-	-	-	338

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	278	-	-	689	-
HCM Lane V/C Ratio	0.213	-	-	0.033	-
HCM Control Delay (s)	21.4	-	-	10.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	54	975	889	43	17	62
Future Vol, veh/h	54	975	889	43	17	62
Conflicting Peds, #/hr	11	0	0	11	3	17
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	2	2	7	13	11
Mvmt Flow	61	997	909	49	19	70

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	969	0	-	0	2042 937
Stage 1	-	-	-	-	920 -
Stage 2	-	-	-	-	1122 -
Critical Hdwy	4.1	-	-	-	6.53 6.31
Critical Hdwy Stg 1	-	-	-	-	5.53 -
Critical Hdwy Stg 2	-	-	-	-	5.53 -
Follow-up Hdwy	2.2	-	-	-	3.617 3.399
Pot Cap-1 Maneuver	719	-	-	-	58 309
Stage 1	-	-	-	-	371 -
Stage 2	-	-	-	-	296 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	711	-	-	-	52 301
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	336 -
Stage 2	-	-	-	-	293 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	26.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	711	-	-	-	256
HCM Lane V/C Ratio	0.086	-	-	-	0.351
HCM Control Delay (s)	10.5	-	-	-	26.5
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	1.5

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

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	6	511	42	30	365	1	5	0	71	1	1	8
Future Vol, veh/h	6	511	42	30	365	1	5	0	71	1	1	8
Conflicting Peds, #/hr	4	0	22	22	0	4	20	0	11	11	0	20
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	14	1	12	0	1	0	0	0	0	0	0	0
Mvmt Flow	8	639	53	38	456	1	6	0	89	1	1	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	461	0	0	714	0	0	1262	1241	699	1274	1267	481
Stage 1	-	-	-	-	-	-	704	704	-	537	537	-
Stage 2	-	-	-	-	-	-	558	537	-	737	730	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.326	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1040	-	-	895	-	-	148	176	443	145	170	589
Stage 1	-	-	-	-	-	-	431	443	-	532	526	-
Stage 2	-	-	-	-	-	-	518	526	-	413	431	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1036	-	-	876	-	-	131	160	429	107	154	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	131	160	-	107	154	-
Stage 1	-	-	-	-	-	-	416	428	-	523	493	-
Stage 2	-	-	-	-	-	-	469	493	-	320	416	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.7			17.9			16.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	1036	-	-	876	-	-	336
HCM Lane V/C Ratio	0.255	0.007	-	-	0.043	-	-	0.037
HCM Control Delay (s)	17.9	8.5	0	-	9.3	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↔			↔	
Traffic Vol, veh/h	2	1	6	0	0	0	0	245	276	174	240	3
Future Vol, veh/h	2	1	6	0	0	0	0	245	276	174	240	3
Conflicting Peds, #/hr	29	0	0	0	0	29	0	0	90	90	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	1	0	1	0
Mvmt Flow	3	1	8	0	0	0	0	318	358	226	312	4

Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	1292	1532	314				316	0	0	766	0	0
Stage 1	766	766	-				-	-	-	-	-	-
Stage 2	526	766	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	182	118	731				1256	-	-	856	-	-
Stage 1	462	415	-				-	-	-	-	-	-
Stage 2	597	415	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	124	0	731				1256	-	-	856	-	-
Mov Cap-2 Maneuver	124	0	-				-	-	-	-	-	-
Stage 1	462	0	-				-	-	-	-	-	-
Stage 2	406	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.3	0	4.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1256	-	-	329	856	-	-
HCM Lane V/C Ratio	-	-	-	0.036	0.264	-	-
HCM Control Delay (s)	0	-	-	16.3	10.7	0	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.1	-	-

HCM 6th TWSC
 7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	44	159	247	0	0	388
Future Vol, veh/h	44	159	247	0	0	388
Conflicting Peds, #/hr	1	1	0	24	24	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	76	76	76	76	76	76
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	58	209	325	0	0	511

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	837	326	0	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.4	6.21	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	-	-	-	-
Pot Cap-1 Maneuver	339	718	-	0	0	-
Stage 1	737	-	-	0	0	-
Stage 2	606	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	339	717	-	-	-	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 577	-
HCM Lane V/C Ratio	- 0.463	-
HCM Control Delay (s)	- 16.5	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 2.4	-

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	0	11	0	0	0	0	523	22	9	237	4
Future Vol, veh/h	0	0	11	0	0	0	0	523	22	9	237	4
Conflicting Peds, #/hr	29	0	0	0	0	29	0	0	91	91	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	1	1	0
Mvmt Flow	0	0	14	0	0	0	0	679	29	12	308	5

Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	1058	1134	311				313	0	0	799	0	0
Stage 1	335	335	-				-	-	-	-	-	-
Stage 2	723	799	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	251	204	734				1259	-	-	828	-	-
Stage 1	729	646	-				-	-	-	-	-	-
Stage 2	484	401	-				-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	246	0	734				1259	-	-	828	-	-
Mov Cap-2 Maneuver	246	0	-				-	-	-	-	-	-
Stage 1	729	0	-				-	-	-	-	-	-
Stage 2	475	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	734	828	-	-
HCM Lane V/C Ratio	-	-	-	0.019	0.014	-	-
HCM Control Delay (s)	0	-	-	10	9.4	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-

HCM 6th TWSC
 9: Scoville Avenue & Alley

02/01/2019

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	5	21	0	72	75	0
Future Vol, veh/h	5	21	0	72	75	0
Conflicting Peds, #/hr	4	51	64	0	0	64
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	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	9	36	0	124	129	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	257	180	-	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	736	868	0	-	-	0
Stage 1	902	-	0	-	-	0
Stage 2	903	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	736	826	-	-	-	-
Mov Cap-2 Maneuver	736	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	903	-	-	-	-	-

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)	- 807	-
HCM Lane V/C Ratio	- 0.056	-
HCM Control Delay (s)	- 9.7	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.2	-

HCM 6th TWSC
 10: Madison Street & Fenwick RI/RO Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	985	883	48	0	27
Future Vol, veh/h	0	985	883	48	0	27
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	86	86	86	86	86	86
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1031	924	56	0	31

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	317
HCM Lane V/C Ratio	-	-	-	0.099
HCM Control Delay (s)	-	-	-	17.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

HCM 6th TWSC

26: Fenwick RI/RO Access Drive/Garage Access Drive & Fenwick Middle Access/Alley 02/01/2019

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	141	24	23	0	0	0	0	48	0	2	4	0
Future Vol, veh/h	141	24	23	0	0	0	0	48	0	2	4	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	92	60	60	60	60	60	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	235	40	38	0	0	0	0	80	0	3	7	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	0	0	0	-	529	59	569	548	-
Stage 1	-	-	-	-	529	-	0	0	-
Stage 2	-	-	-	-	0	-	569	548	-
Critical Hdwy	4.1	-	-	-	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	-	-	-	-	0	458	1012	436	447
Stage 1	-	-	-	-	0	530	-	-	0
Stage 2	-	-	-	-	0	-	511	520	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	458	1012	378	447
Mov Cap-2 Maneuver	-	-	-	-	-	458	-	378	447
Stage 1	-	-	-	-	-	530	-	-	-
Stage 2	-	-	-	-	-	-	-	434	520

Approach	EB	NB	SB
HCM Control Delay, s		14.5	13.8
HCM LOS		B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1
Capacity (veh/h)	458	-	-	-	421
HCM Lane V/C Ratio	0.175	-	-	-	0.024
HCM Control Delay (s)	14.5	-	-	-	13.8
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.6	-	-	-	0.1

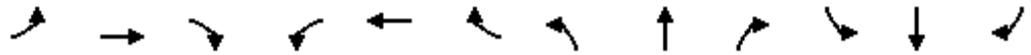
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	901	22	34	826	50	55	260	45	38	118	92
Future Volume (vph)	236	901	22	34	826	50	55	260	45	38	118	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	265		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	0			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96			0.88	0.97	0.97		0.95	0.97	
Frt			0.850			0.850		0.978			0.934	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1636	1621	1501	1685	1649	1385	1736	1674	0	1805	1836	0
Flt Permitted	0.084			0.118			0.454			0.255		
Satd. Flow (perm)	145	1621	1438	209	1649	1219	805	1674	0	458	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			109			8			37
Link Speed (mph)		30			30			25				25
Link Distance (ft)		567			227			215				123
Travel Time (s)		12.9			5.2			5.9				3.4
Confl. Peds. (#/hr)	59		13	13		59	17		48	48		17
Confl. Bikes (#/hr)									31			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	0%	0%	2%	8%	4%	1%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	1	0	0	2	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	943	26	40	864	58	64	354	0	44	244	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	34.0	34.0	23.0	23.0		23.0	23.0	
Total Split (s)	12.0	63.0	63.0	7.0	58.0	58.0	30.0	30.0		30.0	30.0	
Total Split (%)	12.0%	63.0%	63.0%	7.0%	58.0%	58.0%	30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	66.8	60.1	60.1	58.3	52.0	52.0	23.7	23.7		23.7	23.7	
Actuated g/C Ratio	0.67	0.60	0.60	0.58	0.52	0.52	0.24	0.24		0.24	0.24	

Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

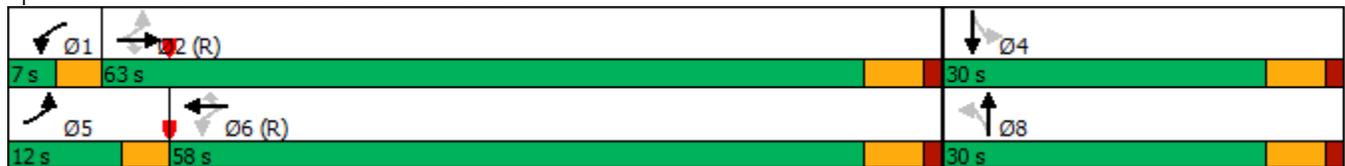


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.21	0.97	0.03	0.23	1.01	0.08	0.34	0.88		0.41	0.53	
Control Delay	150.3	44.0	0.0	9.3	58.2	0.6	37.3	59.9		45.2	32.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	150.3	44.0	0.0	9.3	58.2	0.6	37.3	59.9		45.2	32.6	
LOS	F	D	A	A	E	A	D	E		D	C	
Approach Delay		66.5			52.7			56.5			34.5	
Approach LOS		E			D			E			C	
Queue Length 50th (ft)	~160	~608	0	8	-539	0	34	213		24	114	
Queue Length 95th (ft)	#299	#814	0	18	#751	1	71	#344		58	180	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	265		37	125		59	25			25		
Base Capacity (vph)	227	973	892	176	857	686	193	407		109	468	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.21	0.97	0.03	0.23	1.01	0.08	0.33	0.87		0.40	0.52	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 57.3
 Intersection LOS: E
 Intersection Capacity Utilization 95.9%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

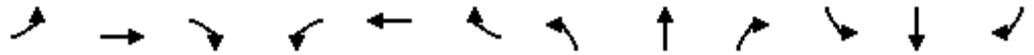
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	692	35	54	881	38	68	198	33	46	216	105
Future Volume (vph)	87	692	35	54	881	38	68	198	33	46	216	105
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.92	0.99		0.94	0.98	0.98		0.94	0.97	
Frt			0.850			0.850		0.979			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	1689	1495	1620	1735	1501	1770	1681	0	1805	1842	0
Flt Permitted	0.090			0.222			0.349			0.501		
Satd. Flow (perm)	152	1689	1378	374	1735	1413	635	1681	0	893	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		10			31	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	23		38	38		23	18		36	36		18
Confl. Bikes (#/hr)			1			4			2			11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	3%	0%	4%	2%	0%	2%	2%	3%	0%	1%	4%
Bus Blockages (#/hr)	0	0	2	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	663	37	57	844	40	72	246	0	49	342	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	10.0	41.0	41.0	10.0	41.0	41.0	39.0	39.0		39.0	39.0	
Total Split (%)	11.1%	45.6%	45.6%	11.1%	45.6%	45.6%	43.3%	43.3%		43.3%	43.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	53.3	44.9	44.9	52.3	44.4	44.4	24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.59	0.50	0.50	0.58	0.49	0.49	0.28	0.28		0.28	0.28	

18-100 - Fenwick High School Parking Garage
Year 2023 Future Afternoon Peak Hour - Road Diet, 10% diversion, inp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

02/01/2019

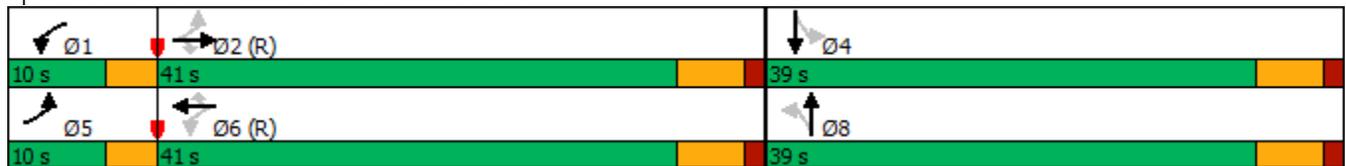


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.46	0.79	0.05	0.19	0.99	0.05	0.41	0.52		0.20	0.64	
Control Delay	18.4	30.3	0.7	10.2	54.9	1.1	32.0	29.3		24.5	30.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.4	30.3	0.7	10.2	54.9	1.1	32.0	29.3		24.5	30.9	
LOS	B	C	A	B	D	A	C	C		C	C	
Approach Delay		27.5			49.9			29.9			30.1	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	19	312	0	12	-525	0	33	113		21	155	
Queue Length 95th (ft)	61	#609	4	33	#829	6	66	162		45	214	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	206	843	727	310	855	737	232	622		327	695	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.45	0.79	0.05	0.18	0.99	0.05	0.31	0.40		0.15	0.49	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 36.9
 Intersection LOS: D
 Intersection Capacity Utilization 89.5%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings 2: East Avenue & Washington Boulevard

02/01/2019



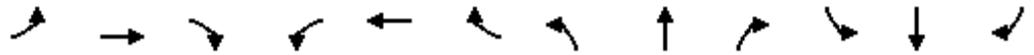
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	14	337	60	33	444	14	74	217	50	15	266	24
Future Volume (vph)	14	337	60	33	444	14	74	217	50	15	266	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.91		1.00	0.94		0.97			0.99	
Frt			0.850			0.850		0.980			0.989	
Flt Protected		0.998			0.997			0.989			0.998	
Satd. Flow (prot)	0	1609	1615	0	1548	1509	0	1479	0	0	1598	0
Flt Permitted		0.972			0.952			0.857			0.972	
Satd. Flow (perm)	0	1566	1467	0	1475	1413	0	1275	0	0	1549	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55			55		18			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	27		44	44		27	27		107	107		27
Confl. Bikes (#/hr)									2			12
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	1%	7%	3%	1%	6%	7%	1%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	66	0	524	15	0	374	0	0	334	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	31.0	31.0		31.0	31.0	
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	31.0	31.0		31.0	31.0	
Total Split (%)	48.3%	48.3%	48.3%	48.3%	48.3%	48.3%	51.7%	51.7%		51.7%	51.7%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		22.1	22.1		22.1	22.1		20.2			20.2	
Actuated g/C Ratio		0.41	0.41		0.41	0.41		0.37			0.37	

18-100 - Fenwick High School Parking Garage
Year 2023 Future Afternoon Peak Hour - Road Diet, 10% diversion, inp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings
 2: East Avenue & Washington Boulevard

02/01/2019

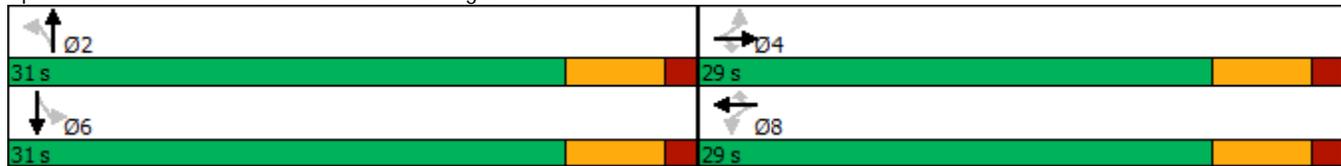


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.61	0.11		0.88	0.02		0.77				0.58
Control Delay		18.7	5.4		35.8	0.1		27.0				17.9
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		18.7	5.4		35.8	0.1		27.0				17.9
LOS		B	A		D	A		C				B
Approach Delay		16.7			34.8			27.0				17.9
Approach LOS		B			C			C				B
Queue Length 50th (ft)		94	2		150	0		100				83
Queue Length 95th (ft)		194	23		#351	1		#204				150
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		670	659		631	636		602				725
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		0.57	0.10		0.83	0.02		0.62				0.46

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 54.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 25.0
 Intersection LOS: C
 Intersection Capacity Utilization 99.6%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
 3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	763	10	15	914	7	12
Future Vol, veh/h	763	10	15	914	7	12
Conflicting Peds, #/hr	0	54	54	0	0	43
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	20	0	1	14	0
Mvmt Flow	715	10	16	857	7	13

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	779	0	1663
Stage 1	-	-	-	-	774
Stage 2	-	-	-	-	889
Critical Hdwy	-	-	4.1	-	6.54
Critical Hdwy Stg 1	-	-	-	-	5.54
Critical Hdwy Stg 2	-	-	-	-	5.54
Follow-up Hdwy	-	-	2.2	-	3.626
Pot Cap-1 Maneuver	-	-	847	-	100
Stage 1	-	-	-	-	434
Stage 2	-	-	-	-	383
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	803	-	93
Mov Cap-2 Maneuver	-	-	-	-	222
Stage 1	-	-	-	-	412
Stage 2	-	-	-	-	375

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	287	-	-	803	-
HCM Lane V/C Ratio	0.069	-	-	0.019	-
HCM Control Delay (s)	18.5	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	718	830	66	25	78
Future Vol, veh/h	37	718	830	66	25	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	0	4	0
Mvmt Flow	39	673	778	69	26	81

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	847	0	-	0	1529 778
Stage 1	-	-	-	-	778 -
Stage 2	-	-	-	-	751 -
Critical Hdwy	4.1	-	-	-	6.44 6.2
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	2.2	-	-	-	3.536 3.3
Pot Cap-1 Maneuver	799	-	-	-	128 400
Stage 1	-	-	-	-	449 -
Stage 2	-	-	-	-	463 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	799	-	-	-	122 400
Mov Cap-2 Maneuver	-	-	-	-	258 -
Stage 1	-	-	-	-	427 -
Stage 2	-	-	-	-	463 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	799	-	-	-	353
HCM Lane V/C Ratio	0.048	-	-	-	0.304
HCM Control Delay (s)	9.7	-	-	-	19.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

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	2	379	28	29	464	0	17	0	107	0	0	0
Future Vol, veh/h	2	379	28	29	464	0	17	0	107	0	0	0
Conflicting Peds, #/hr	22	0	36	36	0	22	48	0	26	26	0	48
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	3	1	0	0	0	0	0	0	0
Mvmt Flow	2	408	30	31	499	0	18	0	115	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	521	0	0	474	0	0	1072	1046	485	1094	1061	569
Stage 1	-	-	-	-	-	-	463	463	-	583	583	-
Stage 2	-	-	-	-	-	-	609	583	-	511	478	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1056	-	-	1083	-	-	200	230	586	193	226	525
Stage 1	-	-	-	-	-	-	583	568	-	502	502	-
Stage 2	-	-	-	-	-	-	486	502	-	549	559	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1034	-	-	1046	-	-	178	208	552	141	204	491
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	208	-	141	204	-
Stage 1	-	-	-	-	-	-	561	547	-	490	471	-
Stage 2	-	-	-	-	-	-	445	471	-	423	538	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			17.1			0		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	429	1034	-	-	1046	-	-	-
HCM Lane V/C Ratio	0.311	0.002	-	-	0.03	-	-	-
HCM Control Delay (s)	17.1	8.5	0	-	8.5	0	-	0
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	1.3	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	0	3	0	0	0	0	255	62	40	354	3
Future Vol, veh/h	1	0	3	0	0	0	0	255	62	40	354	3
Conflicting Peds, #/hr	9	0	1	1	0	9	0	0	43	43	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	1	3	0	1	0
Mvmt Flow	1	0	4	0	0	0	0	315	77	49	437	4

Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	900	972	440				441	0	0	435	0	0
Stage 1	537	537	-				-	-	-	-	-	-
Stage 2	363	435	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	312	254	621				1130	-	-	1135	-	-
Stage 1	590	526	-				-	-	-	-	-	-
Stage 2	708	584	-				-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	294	0	620				1130	-	-	1135	-	-
Mov Cap-2 Maneuver	294	0	-				-	-	-	-	-	-
Stage 1	590	0	-				-	-	-	-	-	-
Stage 2	668	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1130	-	-	485	1135	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.044	-	-
HCM Control Delay (s)	0	-	-	12.5	8.3	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	-	-

HCM 6th TWSC
7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↑			↑
Traffic Vol, veh/h	34	75	266	0	0	367
Future Vol, veh/h	34	75	266	0	0	367
Conflicting Peds, #/hr	11	11	0	61	61	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	85	85	85	85	85	85
Heavy Vehicles, %	6	5	2	0	0	1
Mvmt Flow	40	88	313	0	0	432

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	756	324	0	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	-	-
Pot Cap-1 Maneuver	370	710	-	0	0	-
Stage 1	732	-	-	0	0	-
Stage 2	639	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	366	703	-	-	-	-
Mov Cap-2 Maneuver	366	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 546	-
HCM Lane V/C Ratio	- 0.235	-
HCM Control Delay (s)	- 13.6	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.9	-

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	1	0	12	12	0	10	3	306	14	6	330	7
Future Vol, veh/h	1	0	12	12	0	10	3	306	14	6	330	7
Conflicting Peds, #/hr	9	0	1	1	0	9	0	0	45	45	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	8	0	0	0	1	7	0	1	0
Mvmt Flow	1	0	15	15	0	12	4	378	17	7	407	9

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	836	874	413	874	870	441	416	0	0	440	0	0
Stage 1	426	426	-	440	440	-	-	-	-	-	-	-
Stage 2	410	448	-	434	430	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	289	290	643	264	292	621	1154	-	-	1131	-	-
Stage 1	610	589	-	584	581	-	-	-	-	-	-	-
Stage 2	623	576	-	589	587	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	278	274	642	244	276	589	1154	-	-	1083	-	-
Mov Cap-2 Maneuver	278	274	-	244	276	-	-	-	-	-	-	-
Stage 1	608	584	-	557	554	-	-	-	-	-	-	-
Stage 2	602	549	-	570	582	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	11.4		16.8		0.1			0.1		
HCM LOS	B		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1154	-	-	583	333	1083	-
HCM Lane V/C Ratio	0.003	-	-	0.028	0.082	0.007	-
HCM Control Delay (s)	8.1	0	-	11.4	16.8	8.3	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-

HCM 6th TWSC
9: Scoville Avenue & Alley

02/01/2019

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	43	27	0	76	66	0
Future Vol, veh/h	43	27	0	76	66	0
Conflicting Peds, #/hr	10	21	78	0	0	78
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	66	66	66	66	66	66
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	65	41	0	115	100	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	225	121	-	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	768	936	0	-	-	0
Stage 1	929	-	0	-	-	0
Stage 2	906	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	768	917	-	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	906	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 819	-
HCM Lane V/C Ratio	- 0.13	-
HCM Control Delay (s)	- 10	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

HCM 6th TWSC
 10: Madison Street & Fenwick RI/RO Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	773	921	0	0	52
Future Vol, veh/h	0	773	921	0	0	52
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	94	94	94	94	94	94
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	0	740	882	0	0	55

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	348
HCM Lane V/C Ratio	-	-	-	0.159
HCM Control Delay (s)	-	-	-	17.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.6

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	21	16	0	0	0	0	0	0	49	36	0
Future Vol, veh/h	0	21	16	0	0	0	0	0	0	49	36	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	60	60	60	92	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	35	27	0	0	0	0	0	0	82	60	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	0	0	0	-	49	49	49	62	-
Stage 1	-	-	-	-	49	-	0	0	-
Stage 2	-	-	-	-	0	-	49	62	-
Critical Hdwy	4.1	-	-	-	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	-	-	-	-	0	846	1025	956	833
Stage 1	-	-	-	-	0	858	-	-	0
Stage 2	-	-	-	-	0	-	969	847	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	846	1025	956	833
Mov Cap-2 Maneuver	-	-	-	-	-	846	-	956	833
Stage 1	-	-	-	-	-	858	-	-	-
Stage 2	-	-	-	-	-	-	-	969	847

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR SBLn1
Capacity (veh/h)	-	-	-	900
HCM Lane V/C Ratio	-	-	-	0.157
HCM Control Delay (s)	0	0	-	9.7
HCM Lane LOS	A	A	-	A
HCM 95th %tile Q(veh)	-	-	-	0.6

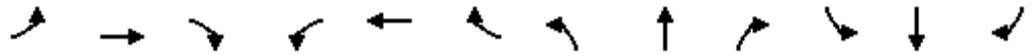
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	692	35	54	881	38	68	198	33	46	216	105
Future Volume (vph)	87	692	35	54	881	38	68	198	33	46	216	105
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	265		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	0			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.92	0.99		0.94	0.98	0.98		0.94	0.97	
Frt			0.850			0.850		0.979			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	1689	1495	1620	1735	1501	1770	1681	0	1805	1842	0
Flt Permitted	0.090			0.222			0.349			0.501		
Satd. Flow (perm)	152	1689	1378	374	1735	1413	635	1681	0	893	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		10			31	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	23		38	38		23	18		36	36		18
Confl. Bikes (#/hr)			1			4			2			11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	3%	0%	4%	2%	0%	2%	2%	3%	0%	1%	4%
Bus Blockages (#/hr)	0	0	2	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	663	37	57	844	40	72	246	0	49	342	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	10.0	41.0	41.0	10.0	41.0	41.0	39.0	39.0		39.0	39.0	
Total Split (%)	11.1%	45.6%	45.6%	11.1%	45.6%	45.6%	43.3%	43.3%		43.3%	43.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	53.3	44.9	44.9	52.3	44.4	44.4	24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.59	0.50	0.50	0.58	0.49	0.49	0.28	0.28		0.28	0.28	

Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

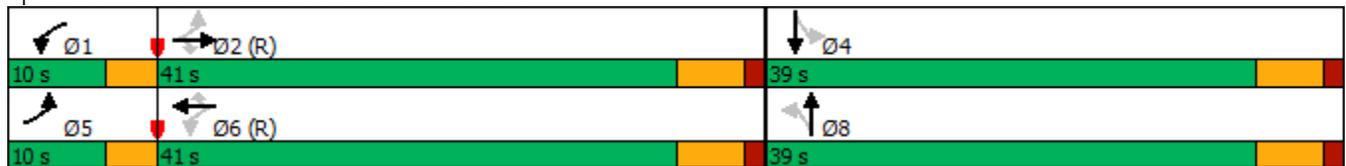


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.46	0.79	0.05	0.19	0.99	0.05	0.41	0.52		0.20	0.64	
Control Delay	18.4	30.3	0.7	10.2	54.9	1.1	32.0	29.3		24.5	30.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.4	30.3	0.7	10.2	54.9	1.1	32.0	29.3		24.5	30.9	
LOS	B	C	A	B	D	A	C	C		C	C	
Approach Delay		27.5			49.9			29.9			30.1	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	19	312	0	12	-525	0	33	113		21	155	
Queue Length 95th (ft)	61	#609	4	33	#829	6	66	162		45	214	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	265		37	125		59	25			25		
Base Capacity (vph)	206	843	727	310	855	737	232	622		327	695	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.45	0.79	0.05	0.18	0.99	0.05	0.31	0.40		0.15	0.49	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 36.9
 Intersection LOS: D
 Intersection Capacity Utilization 89.5%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



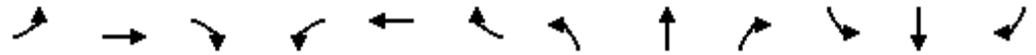
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	872	29	49	891	30	45	232	35	53	250	85
Future Volume (vph)	56	872	29	49	891	30	45	232	35	53	250	85
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	157		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	93			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.96	0.98	0.99		0.97	0.98	
Frt			0.850			0.850		0.980			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1723	1501	1685	1718	1458	1805	1715	0	1770	1858	0
Flt Permitted	0.147			0.189			0.311			0.434		
Satd. Flow (perm)	256	1723	1426	333	1718	1404	582	1715	0	783	1858	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		8			19	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	10		20	20		10	13		21	21		13
Confl. Bikes (#/hr)						2			3			7
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	0%	0%	3%	3%	0%	1%	0%	2%	4%	1%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	793	29	49	810	30	45	269	0	54	339	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	8.0	53.0	53.0	7.0	52.0	52.0	30.0	30.0		30.0	30.0	
Total Split (%)	8.9%	58.9%	58.9%	7.8%	57.8%	57.8%	33.3%	33.3%		33.3%	33.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	56.9	51.7	51.7	55.0	49.2	49.2	22.1	22.1		22.1	22.1	
Actuated g/C Ratio	0.63	0.57	0.57	0.61	0.55	0.55	0.25	0.25		0.25	0.25	

Lanes, Volumes, Timings
 1: East Avenue & Madison Street

02/01/2019

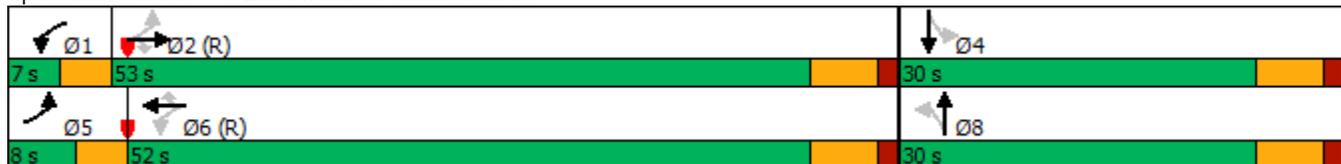


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.80	0.03	0.18	0.86	0.04	0.31	0.63		0.28	0.72	
Control Delay	8.8	24.9	0.1	8.1	30.8	0.1	33.6	36.2		31.0	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.8	24.9	0.1	8.1	30.8	0.1	33.6	36.2		31.0	38.6	
LOS	A	C	A	A	C	A	C	D		C	D	
Approach Delay		23.0			28.5			35.9			37.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	11	378	0	10	405	0	20	129		24	162	
Queue Length 95th (ft)	25	#630	0	23	#664	0	53	210		57	257	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	157		37	125		59	25			25		
Base Capacity (vph)	239	989	853	268	939	803	155	463		208	509	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.80	0.03	0.18	0.86	0.04	0.29	0.58		0.26	0.67	

Intersection Summary

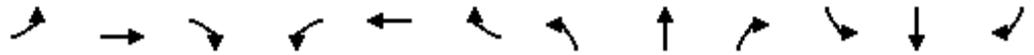
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 28.9
 Intersection LOS: C
 Intersection Capacity Utilization 88.5%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Lanes, Volumes, Timings
2: East Avenue & Washington Boulevard

02/01/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	15	449	68	41	572	24	58	255	31	15	269	28
Future Volume (vph)	15	449	68	41	572	24	58	255	31	15	269	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		1.00	0.96		0.99			0.99	
Frt			0.850			0.850		0.988			0.988	
Flt Protected		0.998			0.997			0.992			0.998	
Satd. Flow (prot)	0	1640	1583	0	1548	1615	0	1533	0	0	1607	0
Flt Permitted		0.947			0.940			0.886			0.972	
Satd. Flow (perm)	0	1556	1520	0	1459	1553	0	1365	0	0	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53			53		9			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		557			447			250			263	
Travel Time (s)		12.7			10.2			6.8			7.2	
Confl. Peds. (#/hr)	11		11	11		11	20		28	28		20
Confl. Bikes (#/hr)			2						5			7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	1%	0%	4%	1%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		7			15			11			6	
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	504	74	0	667	26	0	374	0	0	338	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	30.0	30.0		30.0	30.0	
Total Split (%)	51.6%	51.6%	51.6%	51.6%	51.6%	51.6%	48.4%	48.4%		48.4%	48.4%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None								
Act Effect Green (s)		26.1	26.1		26.1	26.1		19.9			19.9	
Actuated g/C Ratio		0.45	0.45		0.45	0.45		0.34			0.34	

18-100 - Fenwick High School Parking Garage
Year 2023 Future PM Peak Hour - Road Diet, 10% Diversion and imp. on Washington

Synchro 9 Report

Lanes, Volumes, Timings

2: East Avenue & Washington Boulevard

02/01/2019

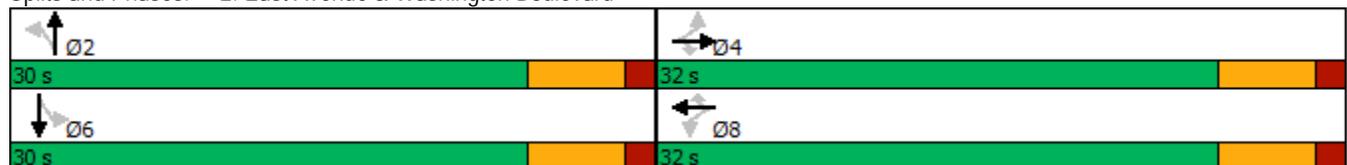


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.72	0.10		1.02	0.04		0.79				0.62
Control Delay		22.0	5.5		61.0	1.7		30.4				21.1
Queue Delay		0.0	0.0		0.0	0.0		0.0				0.0
Total Delay		22.0	5.5		61.0	1.7		30.4				21.1
LOS		C	A		E	A		C				C
Approach Delay		19.9			58.8			30.4				21.1
Approach LOS		B			E			C				C
Queue Length 50th (ft)		138	4		-240	0		111				93
Queue Length 95th (ft)		#307	25		#473	6		#230				165
Internal Link Dist (ft)		477			367			170				183
Turn Bay Length (ft)			50			50						
Base Capacity (vph)		699	712		656	727		572				654
Starvation Cap Reductn		0	0		0	0		0				0
Spillback Cap Reductn		0	0		0	0		0				0
Storage Cap Reductn		0	0		0	0		0				0
Reduced v/c Ratio		0.72	0.10		1.02	0.04		0.65				0.52

Intersection Summary

Area Type: Other
 Cycle Length: 62
 Actuated Cycle Length: 58
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 35.7
 Intersection LOS: D
 Intersection Capacity Utilization 109.9%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: East Avenue & Washington Boulevard



HCM 6th TWSC
3: Scoville Avenue & Madison Street

02/01/2019

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	950	9	30	946	8	9
Future Vol, veh/h	950	9	30	946	8	9
Conflicting Peds, #/hr	0	12	12	0	0	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	919	10	32	915	9	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	941	0	1915
Stage 1	-	-	-	-	936
Stage 2	-	-	-	-	979
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	737	-	75
Stage 1	-	-	-	-	385
Stage 2	-	-	-	-	367
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	729	-	71
Mov Cap-2 Maneuver	-	-	-	-	199
Stage 1	-	-	-	-	381
Stage 2	-	-	-	-	351

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	729	-
HCM Lane V/C Ratio	0.074	-	-	0.044	-
HCM Control Delay (s)	20.7	-	-	10.2	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC
4: Madison Street & Scoville Avenue

02/01/2019

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	57	900	924	76	14	48
Future Vol, veh/h	57	900	924	76	14	48
Conflicting Peds, #/hr	15	0	0	15	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	25	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	7	0
Mvmt Flow	61	871	894	82	15	52

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	991	0	-	0	1902
Stage 1	-	-	-	-	909
Stage 2	-	-	-	-	993
Critical Hdwy	4.1	-	-	-	6.47
Critical Hdwy Stg 1	-	-	-	-	5.47
Critical Hdwy Stg 2	-	-	-	-	5.47
Follow-up Hdwy	2.2	-	-	-	3.563
Pot Cap-1 Maneuver	706	-	-	-	74
Stage 1	-	-	-	-	385
Stage 2	-	-	-	-	351
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	696	-	-	-	66
Mov Cap-2 Maneuver	-	-	-	-	188
Stage 1	-	-	-	-	346
Stage 2	-	-	-	-	346

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	21.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	696	-	-	-	282
HCM Lane V/C Ratio	0.088	-	-	-	0.236
HCM Control Delay (s)	10.7	-	-	-	21.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9

HCM 6th TWSC
5: Scoville Avenue & Washington Boulevard

02/01/2019

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	462	22	51	612	2	19	0	61	2	1	5
Future Vol, veh/h	9	462	22	51	612	2	19	0	61	2	1	5
Conflicting Peds, #/hr	14	0	14	14	0	14	12	0	12	12	0	12
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0	0	0	0	0	0	0
Mvmt Flow	9	467	22	52	618	2	19	0	62	2	1	5

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	634	0	0	503	0	0	1248	1248	504	1276	1258	645
Stage 1	-	-	-	-	-	-	510	510	-	737	737	-
Stage 2	-	-	-	-	-	-	738	738	-	539	521	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	959	-	-	1067	-	-	152	175	572	145	172	476
Stage 1	-	-	-	-	-	-	550	541	-	413	428	-
Stage 2	-	-	-	-	-	-	413	427	-	530	535	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	946	-	-	1053	-	-	136	156	558	117	153	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	156	-	117	153	-
Stage 1	-	-	-	-	-	-	536	527	-	402	391	-
Stage 2	-	-	-	-	-	-	373	390	-	460	521	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.7		19.9		21	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	321	946	-	-	1053	-	-	233
HCM Lane V/C Ratio	0.252	0.01	-	-	0.049	-	-	0.035
HCM Control Delay (s)	19.9	8.8	0	-	8.6	0	-	21
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.2	-	-	0.1

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	1	3	0	0	0	1	300	19	15	370	1
Future Vol, veh/h	1	1	3	0	0	0	1	300	19	15	370	1
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	11	11	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	1	3	0	0	0	1	333	21	17	411	1

Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	793	813	412				412	0	0	365	0	0
Stage 1	446	446	-				-	-	-	-	-	-
Stage 2	347	367	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	360	315	644				1158	-	-	1205	-	-
Stage 1	649	577	-				-	-	-	-	-	-
Stage 2	720	626	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	353	0	644				1158	-	-	1205	-	-
Mov Cap-2 Maneuver	353	0	-				-	-	-	-	-	-
Stage 1	648	0	-				-	-	-	-	-	-
Stage 2	707	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	534	1205	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01	0.014	-	-
HCM Control Delay (s)	8.1	0	-	11.8	8	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	-	-

HCM 6th TWSC
 7: East Avenue & Fenwick Outbound Only Access

02/01/2019

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	12	33	306	0	0	371
Future Vol, veh/h	12	33	306	0	0	371
Conflicting Peds, #/hr	6	8	0	20	20	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	89	89	89	89	89	89
Heavy Vehicles, %	0	6	1	0	0	1
Mvmt Flow	13	37	344	0	0	417

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	767	352	0	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	-	-
Pot Cap-1 Maneuver	373	683	-	0	0	-
Stage 1	722	-	-	0	0	-
Stage 2	665	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	371	678	-	-	-	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 555	-
HCM Lane V/C Ratio	- 0.091	-
HCM Control Delay (s)	- 12.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	10	6	0	1	2	314	2	1	371	1
Future Vol, veh/h	5	0	10	6	0	1	2	314	2	1	371	1
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	12	12	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	6	0	11	7	0	1	2	349	2	1	412	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	771	782	413	786	781	363	413	0	0	363	0	0
Stage 1	415	415	-	366	366	-	-	-	-	-	-	-
Stage 2	356	367	-	420	415	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	320	328	643	312	329	686	1157	-	-	1207	-	-
Stage 1	619	596	-	657	626	-	-	-	-	-	-	-
Stage 2	666	626	-	615	596	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	318	323	643	302	324	678	1157	-	-	1193	-	-
Mov Cap-2 Maneuver	318	323	-	302	324	-	-	-	-	-	-	-
Stage 1	618	595	-	648	618	-	-	-	-	-	-	-
Stage 2	663	618	-	604	595	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.8		16.2		0.1		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1157	-	-	480	328	1193	-
HCM Lane V/C Ratio	0.002	-	-	0.035	0.024	0.001	-
HCM Control Delay (s)	8.1	0	-	12.8	16.2	8	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑	↑	
Traffic Vol, veh/h	3	6	0	85	61	0
Future Vol, veh/h	3	6	0	85	61	0
Conflicting Peds, #/hr	1	1	11	0	0	11
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	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	7	0	102	73	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	176	74	-	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	818	993	0	-	-	0
Stage 1	955	-	0	-	-	0
Stage 2	926	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	818	992	-	-	-	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 926	-
HCM Lane V/C Ratio	- 0.012	-
HCM Control Delay (s)	- 8.9	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0	-

HCM 6th TWSC
 10: Madison Street & Fenwick RI/RO Access Drive

02/01/2019

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	959	954	0	0	16
Future Vol, veh/h	0	959	954	0	0	16
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	86	86	86	86	86	86
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	0	1004	998	0	0	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 998
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.2
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.3
Pot Cap-1 Maneuver	0	-	- 0 299
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 299
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	299
HCM Lane V/C Ratio	-	-	-	0.062
HCM Control Delay (s)	-	-	-	17.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	6	3	0	0	0	0	0	0	3	13	0
Future Vol, veh/h	0	6	3	0	0	0	0	0	0	3	13	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	60	60	60	92	60	92	60	92	92	92
Heavy Vehicles, %	2	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	10	5	0	0	0	0	0	0	3	14	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	0	0	0	-	13	13	13	15	-
Stage 1	-	-	-	-	13	-	0	0	-
Stage 2	-	-	-	-	0	-	13	15	-
Critical Hdwy	4.12	-	-	-	6.52	6.2	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-	-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	4.018	3.3	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	-	0	881	1073	1004	879	0
Stage 1	-	-	-	0	885	-	-	-	0
Stage 2	-	-	-	0	-	-	1007	883	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	881	1073	1004	879	-
Mov Cap-2 Maneuver	-	-	-	-	881	-	1004	879	-
Stage 1	-	-	-	-	885	-	-	-	-
Stage 2	-	-	-	-	-	-	1007	883	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1
Capacity (veh/h)	-	-	-	-	900
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-	0.1

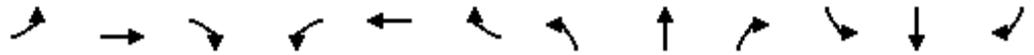
Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	872	29	49	891	30	45	232	35	53	250	85
Future Volume (vph)	56	872	29	49	891	30	45	232	35	53	250	85
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	10	12	10	12	14	12	12	14	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	265		37	125		59	25		0	25		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	0			135			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.96	0.98	0.99		0.97	0.98	
Frt			0.850			0.850		0.980			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1723	1501	1685	1718	1458	1805	1715	0	1770	1858	0
Flt Permitted	0.147			0.189			0.311			0.434		
Satd. Flow (perm)	256	1723	1426	333	1718	1404	582	1715	0	783	1858	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79		8			19	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		567			227			215			123	
Travel Time (s)		12.9			5.2			5.9			3.4	
Confl. Peds. (#/hr)	10		20	20		10	13		21	21		13
Confl. Bikes (#/hr)						2			3			7
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor	100%	90%	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	0%	0%	3%	3%	0%	1%	0%	2%	4%	1%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	0	0	0	0
Parking (#/hr)		6			3			4				
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	793	29	49	810	30	45	269	0	54	339	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	6.5	35.0	35.0	6.5	35.0	35.0	23.0	23.0		23.0	23.0	
Total Split (s)	8.0	53.0	53.0	7.0	52.0	52.0	30.0	30.0		30.0	30.0	
Total Split (%)	8.9%	58.9%	58.9%	7.8%	57.8%	57.8%	33.3%	33.3%		33.3%	33.3%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effect Green (s)	56.9	51.7	51.7	55.0	49.2	49.2	22.1	22.1		22.1	22.1	
Actuated g/C Ratio	0.63	0.57	0.57	0.61	0.55	0.55	0.25	0.25		0.25	0.25	

Lanes, Volumes, Timings
1: East Avenue & Madison Street

02/01/2019

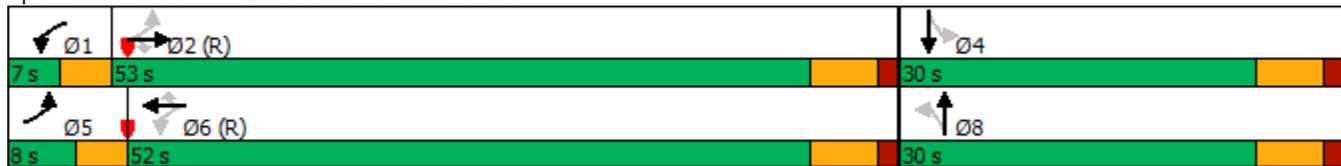


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.80	0.03	0.18	0.86	0.04	0.31	0.63		0.28	0.72	
Control Delay	8.8	24.9	0.1	8.1	30.8	0.1	33.6	36.2		31.0	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.8	24.9	0.1	8.1	30.8	0.1	33.6	36.2		31.0	38.6	
LOS	A	C	A	A	C	A	C	D		C	D	
Approach Delay		23.0			28.5			35.9			37.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	11	378	0	10	405	0	20	129		24	162	
Queue Length 95th (ft)	25	#630	0	23	#664	0	53	210		57	257	
Internal Link Dist (ft)		487			147			135			43	
Turn Bay Length (ft)	265		37	125		59	25			25		
Base Capacity (vph)	239	989	853	268	939	803	155	463		208	509	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.80	0.03	0.18	0.86	0.04	0.29	0.58		0.26	0.67	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 28.9
 Intersection LOS: C
 Intersection Capacity Utilization 88.5%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Avenue & Madison Street



Proposed Internal Traffic Flow and Traffic Control

